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ABSTRACT

Papers presented at this forum were grouped under the following four broad themes: "Unleash the Power!," "Powerful Roles," "Powerful Partnerships," and "Powerful Technologies." Also included is the paper that won the Takeshi Murofushi Research Award, "Implementing Flexible Scheduling in Elementary Libraries" (Joy H. McGregor). Titles and authors of the papers are as follows: (1) "Connecting Marketing and Implementation Research and Library Program Development: A Case Study of the Implementation of National [U.S.] Guidelines and Standards" (Ken Haycock and Pat Cavill); (2) "The United States National Library Power Program: Research, Evaluation and Implications for Professional Development and Library Education" (Dianne McAfee Hopkins and Douglas L. Zweizig); (3) "Authentic Learning and the Research Processes of Gifted Students" (Kay Bishop); (4) "Treasure Hunt or Torture: Student's Perspectives on Research Projects" (Denise Streitenberger and Joy McGregor); (5) "Meeting Diverse Information Needs: Students with Disabilities" (Jan Murray); (6) "The Impact of Whole Language on Four Elementary School Libraries: Results from a Comparative Case Study" (Sandra Hughes); (7) "Images of Poverty in Contemporary Realistic Fiction for Youth: Preliminary Results of a Content Analysis Using a Social Psychological Conceptual Framework" (Shirley A. Fitzgibbons and Carol L. Tilley); (8) "Young People's Reading and Information Use at the End of the Century" (Sandra Olen, et al.); (9) "Unleashing the Theory: Connecting Learning Theory to Building Information Seeking Skills" (Elizabeth B. Danley, et al.); (10) "Revealing Thinking: Teachers Working Together on Information Literacy" (Penny Moore); (11) "University/School Library Collaborations To Integrate Information Technology into Resource-Based Learning Activities" (Roy H.

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Doiron); (12) "Assessing Pre-Service Teachers' Beliefs about the Role of the Library Media Specialist" (Linda L. Wolcott, et al.); (13) "The Role of the Principal in an Information Literate School Community: Findings from an International Research Project" (Dianne Oberg, et al.); (14) "The Changing Powers of Readers in a Time of New Technology" (Margaret Mackey); (15) "Students and the World Wide Web: Issues of Confidence and Competence" (Jinx Stapleton Watson); (16) "Evaluating Web Sites: A Critical Information Skill" (Ruth V. Small and Marilyn P. Arnone); (17) "Web-Based Instruction for School Library Media Specialists: Unleash the Power of the World Wide Web" (Mary Ann Hindes); (18) "The Use of the Internet in School Libraries: An International and Comparative Survey" (James E. Herring); and (19) "The School Library Web Site: On the Information Highway or Stalled in the Carpark?" (Laurel A. Clyde). (MES)

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28th Annual Conference
of the
International Association of School Librarianship

Birmingham, Alabama, USA
November 10-14, 1999

Unleash the Power!

Knowledge - Technology - Diversity

Papers Presented at the
Third International Forum on Research in School Librarianship

Edited by

Lynne Lighthall and **Eleanor Howe**

with assistance from
Vicki Lee

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Introduction

The Third International Forum on Research in School Librarianship was a featured component of the 28th annual conference of the International Association of School Librarianship, held jointly with the Ninth National Conference of the American Association of School Librarians. The conference theme "Unleash the Power! Knowledge Technology Diversity" speaks specifically to *Information Power: Building Partnerships for Learning* the recently released (1998) guidelines for school library media specialists in the United States and to Library Power the privately-funded program focussing on the implementation of the 1988 version of *Information Power*. It also speaks more generally to the power that all school librarians have to positively affect and enhance students' learning experiences.

Each of the papers presented here contributes to our KNOWLEDGE. Many focus on the increasingly present and important role of TECHNOLOGY in all that we do. In addition, all the papers reflect the DIVERSITY of our discipline. There is diversity among the researchers themselves, among the research questions and/or hypotheses they proposed, among the methodologies they employed, among the results they achieved, and among the locales where the studies took place.

Despite this diversity, there are common themes. All the authors stress that research in school librarianship is a continuum. Each quotes or at least makes reference to previous studies and each notes the need and includes suggestions for further research. Each is careful to state what their research does not attempt to cover thus paving the way for future studies. In this same vein, many of the researchers note the limitations of their methodologies. For example, some of the papers report results of action research projects in individual schools, and while generalization may be difficult from small samples and case studies, the findings and insights are nonetheless valuable. But, perhaps most importantly, there is a strong common theme in that each of these research studies has important implications for best practice. They demonstrate clearly that practitioners can benefit from research.

The papers focus on major concerns in the profession such as the implementation and impact of technology and the collaborative role of school librarians. *Information Power: Building Partnerships for Learning* (AASL & AECT 1998) defines the professional roles of school librarians as collaborators in student learning as well as managers of library resources and library program administrators. Several of these papers point out the importance of good interpersonal skills and relations with teachers. They also show that greater collaboration between the school librarian and teachers brings benefits to students by providing better library services in existing programs and by implementing changes in the school library that reflect the school's educational philosophy and/or the student body. Collaboration has the potential to benefit student learning if students apply themselves to the assignment, the materials, and professional services available in the school library. Another recurring conclusion from these studies is that school librarians must be knowledgeable not only of their own field but also of the issues and trends in education in order to collaborate successfully with teachers, to implement new philosophies and programs, and to contribute to students' learning.

Several papers, however, note the critical need to inform and convince teachers and administrators of the collaborative role of school librarians in instruction because they are as yet unaware of it. The profession apparently has preached to itself while other educators have not heard or been convinced of the message. School librarians cannot collaborate without the support of the principal and teachers in the building. Collaboration is a two-way street that will not likely be achieved until teachers of teachers and administrators of teachers are convinced of this role of the school librarian in student learning.

The papers recommend ways to help other educators accept the collaborative role of school librarians. One is to ensure that teacher educators model to pre-service teachers the importance of libraries in student learning. For example, all pre-service teachers should experience a model of librarian-teacher collaboration during their practicum. The next step would be for teacher educators across the curriculum to require library research of their pre-service teachers; in that way new teachers would view the library as an essential part of their own as well as their students' education in all content areas. Even in-service teachers need to experience directly the positive impact of collaborative information skills on student learning in order to be convinced of its importance. Another paper recommends that bridges be built to other educational associations through personal contact. Personal contact, modeling both the importance of libraries in education and the desired collaboration, and direct experience with students seem to be the most effective means of encouraging other educators to accept the collaborative role of school librarians.

Papers from the Third International Forum on Research in School Librarianship

Part 1: The Takeshi Murofushi Research Award

Joy McGregor's proposal for her study "Implementing Flexible Scheduling in Elementary Libraries" earned her the Takeshi Murofushi Research Award for 1998. The award was initiated through the generosity of Mr. Murofushi and colleagues and is adjudicated by the IASL Research Committee, an international panel of researchers and scholars.

The paper included here presents some "preliminary assertions" prime among them that flexible scheduling is only an instrument or tool, albeit an important one, to benefit and enhance student learning. In each of the study cases, a particular curricular need was the impetus to implement flexible scheduling. It provided a means for teachers and librarians to engage in consultation, for example; flexible scheduling did not cause the collaboration. (Sandra Hughes (see below) echoes this sentiment when she claims that the whole language approach will not work in the absence of flexible scheduling.) This finding contrasts with the Library Power program (see Hopkins & Zweizig) where flexible scheduling in the school was a requirement for participation, and seen as an end in itself.

Dr. McGregor also notes the challenges in educating all stakeholders about the impacts on student learning of flexible scheduling. Teachers and principals will not support flexible scheduling—and such support is crucial to successful implementation—if they do not understand its benefits. Librarians cannot implement flexible scheduling if they do not know what strategies are most effective.

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Part 2: "Unleash the Power!"

Borrowing from market research plus research in program implementation and staff development, Ken Haycock and Pat Cavill determined that treating the introduction of the 1998 version of *Information Power* as a "product relaunch" would be the most effective means of disseminating its vision. Their case study describes the development and implementation of marketing strategies. Of central importance were identifying key target groups, such as the National Association of Secondary School Principals, and establishing personal contacts with administrators at each level of the educational hierarchy. The study stresses the importance of impact rather than just actions taken (changes in beliefs and actions, not just delivery of books and videos) and the critical role of personal intervention in achieving impact. The authors also remind us wisely that other educators make decisions for their own reasons and that advocacy by school librarians should help those others achieve their goals rather than appear self-serving.

In response to a request from the sponsors, and using a mix of survey and case study methods, Dianne McAfee Hopkins and Douglas Zweizig examined the impact of the privately funded Library Power program in the United States. They find that the program led to improved collections in school libraries, increased collaboration with teachers, and more flexible scheduling and that these changes have been institutionalized and are expected to remain in practice after the end of funding. Thus, school library programs and school librarians have much to offer toward achieving teaching and learning excellence. By Haycock & Cavill's definition of impact (changes in behavior), the Library Power program was a success. The study also notes that collaboration involves adding a time-consuming activity to an already full schedule and confirms the findings of Danley and her colleagues (see below) that little time is spent on collaboration. The vision of the school library must be recognized and articulated by many (teachers and administrators), not just school librarians. This confirms what McGregor notes (see above) about the importance of educating all stakeholders in the role of the school librarian.

Part 3: Powerful Roles ...

Kay Bishop's case study (using observations, interviews, and analysis of written documents) of ten ninth grade students engaged in an independent research project extends and applies data from previous studies. It makes a valuable contribution to understanding the levels of student learning during resource-based learning projects, an issue related to Standard #3 in *Information Power*. It demonstrates that resource-based learning will lead to "authentic learning" only when students, even gifted students, have successfully developed a focus for their research projects. Disappointingly, the study also reveals the students' reliance on the teachers rather than the librarian, and the overall lack of use of the school library for the project. This raises the question of whether more collaboration between the school librarian and the teacher might have resulted in greater use of both the resources in the school library and the librarian's research and reference skills, which may in turn have helped some of the students develop a focus.

In their study, perhaps as noteworthy for its methodology ("uncontrolled observation" of "purposefully selected" third and eleventh grade students) as its results, Denise Streitenberger and Joy McGregor conclude that the students in both grades had surprisingly similar mental models of doing research and writing a research paper. There were differences, however, in emphasis between the two groups: the younger students enjoyed the research process (reading and telling content) while the older students used more sophisticated methods of paraphrasing and citing to produce a product. Differences in the students also arose from teacher interventions such as instructions for taking notes.

While Jan Murray's study investigates the impact of mainstreaming (i.e., integration or inclusion of "special needs" students in regular classrooms) on the provision of library services to those students, it also reveals that school librarians should be knowledgeable about those disabilities, appropriate resources, teaching approaches, and technologies as well as adept at managing change and relationships with teachers. Murray concludes that quality interaction between the librarian and the special education department is crucial to successful library service to these students but also sadly notes that there is not much consultation and collaboration between the librarians and teachers. This echoes Bishop's findings (see above) with respect to interaction between librarians and teachers of gifted students.

Sandra Hughes' comparative case study of four elementary school libraries extends earlier research in three areas—whole language theory and practice, educational change theory, and change agent theory. The significance of this research lies as much in how school librarians can be successful in achieving desired changes as in what changes they do make. While Hughes studied the implementation of whole language in four elementary schools and its impact on their libraries, she also concludes that school librarians must have knowledge of educational philosophies and movements, leadership skills, and a positive attitude in order to effect desired changes in the library to support school programs. Particularly important are the personality and ability to engage in power sharing, form advocacy groups, and develop strategies to overcome resistance. Hughes' study provides an example of the need for school librarians to involve and work collaboratively with teachers on library policies to implement school programs as well as lesson plans and research. There are implications here for library educators as well.

Shirley Fitzgibbons and Carol Tilley chose to analyze the content of twenty young adult novels reflecting a diversity of poverty-related factors. (A second stage of the study will include another twenty books.) Their study indicates that such books rely heavily on concrete images of poverty (health, food, clothing, etc.) while seldom raising issues of the psychological and social impact of poverty. Although students had the opportunity to experience poverty vicariously through these books, the authors conclude that teachers and librarians can play a key role by helping students to reflect and expand on concrete fictional images and by encouraging the use of this fiction as related readings for curricular topics such as homelessness.

Middle school librarians will enjoy reviewing Sandra Olën, Amy Chamberlain, and Myra Machet's study of the reading preferences and information use of young adults in the United Kingdom and South Africa. These students do tend to judge a book by its cover! The conclusions may affect collection development strategies for middle schools in other countries as well. The authors' comments on their methodology are also instructive to other researchers in the "international" setting and/or who are engaged in comparative studies. For example, the pilot study revealed certain cultural differences that prompted the researchers to question the validity of the data.

The Danley, Forde, Lahmon, & Maddox survey of 126 school librarians in the USA and seventeen other countries around the world indicates that school librarians are knowledgeable of a variety of educational theorists and have similar goals of information literacy and techniques for teaching. In accordance with *Information Power*, school librarians see themselves as facilitators and learners with the constructivist's perspective on learning but, unfortunately, most teachers do not share that view of the librarian's role. The study also reveals that the respondents spend less than 25% of their time collaborating with teachers and that most school libraries are understaffed. Obviously, more staff support would enable more time for collaboration, but teachers must also be willing to join in that collaboration.

Penny Moore concludes from three case studies of elementary schools in New Zealand that even when collaboration between teachers and librarians went well, it may not be repeated or lead to sustained collaboration. She also finds that even when the principal had a vision of such collaboration and an integrated skills approach, teachers may not implement it; there may be a gap between school policy and practice. For example, the teachers emphasized only the beginning stages in most commonly accepted information literacy models as being important, or they required students to draw conclusions without completing the intervening stages .As in the Wolcott, Lawless, & Hobbs study (see below), most of these teachers believed the role of the school librarians was to provide resources rather than to teach information literacy skills or collaborate despite the fact that "information skills" have been an integral part of the New Zealand National curriculum since 1993. The study also suggests that the key to changing teacher perceptions of information skills was direct experience in observing students' learning outcomes; reading research does not convince teachers. Perhaps pre-service teachers in New Zealand should participate in a project such as Ray Doiron describes immediately below..

This project suggests an excellent means of stimulating greater use of school libraries: require pre-service teachers to do an integrated learning project with the teacher and school librarian during their practicum. Interviews with participants at the end of the study provided the basis for the present analysis and report. The overall project's significance lies in its creation of an "authentic" working environment requiring and enabling collaboration among all participants. Such an experience introduces the incoming teachers to a model of collaboration with the school librarian that they can implement on the job.

The study by Linda Wolcott, Kimberly Lawless, and Deborah Hobbs examines the important question of whether teachers share the three roles of school librarians envisioned in *Information Power*: collaborator in teaching and learning, provider of information, and program administrator. This is a highly significant question because it would be difficult for school librarians to achieve the role of collaborator if this vision were not shared by either teachers or administrators. The study concludes that pre-service teachers do not understand a librarian's role as program administrator nor as collaborator in teaching and learning. As with the teachers in the studies reported by Bishop, Murray, and Moore (see above), pre-service teachers in this study saw the primary role of the school librarian as provider of information; they did not see the librarian as having a role to play in curriculum and instruction. The authors offer several suggestions for helping to bring the vision of *Information Power* to pre-service teachers including collaborative projects such as Doiron describes above.

The international study by Dianne Oberg, Lyn Hay, and James Henri reported here has its origins in two qualitative studies in Australia and Canada to determine how principals support librarians and what methods librarians use to garner that support and involve principals in information literacy programs. The present quantitative study examines these factors across a broader range of schools and contexts and identifies some common concerns, priorities, and beliefs of principals and librarians. For example, principals and librarians generally agree on the role of the principal in supporting the implementation of effective school library programs. They also agree that teachers' attitudes and beliefs can be a major barrier to integration of information literacy skills across the curriculum.

Part 5: Powerful Technologies ...?

Margaret Mackey's study of a small number of bright and privileged fifth and eighth grade students appears to confound many stereotypes about their generation. The results of the first phase of this longitudinal study show that the students were neutral in selecting the media format (print, video, CD-ROM) for a fiction title and judged the appeal of the text by personal recommendations, "personal salience," and ease of access. Although these students had home access to videos, computers, and the Internet, none expressed a preference for one particular format and none was impressed by technology or dismissive of print. The study demonstrates that this small sample of technically sophisticated students evaluated and selected a particular format in terms of its own appeal for a specific text rather than its latest bells and whistles. Further results from this study as well as from similar studies replicated elsewhere and/or with a larger sample should provide useful data for school librarians in terms of collection development and program planning.

Based on her interviews with four incoming high school juniors, Jinx Watson concludes that there were different levels of comfort between personal use and school use of the Internet among seasoned Internet users. While these students were both confident and competent in personal uses such as email with friends and locating hobby sites, they were decidedly suspicious of the authority of Web sites for academic purposes and believed that use and assessment of Internet sites on a new subject was not easy. Their admitted lack of instruction in information skills in school indicates a need for direct instruction in searching and evaluating Web sites for academic use in school courses.

Interestingly, and unlike the majority presented here, Ruth Small and Marilyn Arnone's paper focuses not on the results of a project but on the creation, development, and testing of a product. Since instruments for measuring the validity and functionality of Internet sites already exist, Small and Arnone developed three instruments that elementary, middle, and senior high students may use to determine the motivational quality of a Web site. Based on Vroom's E-V theory of motivation, the Web Site Motivational Analysis Checklist indicates a site's level of motivation according to its perceived value (fun) and expectation of success (ease of use or no skills needed). The Checklists are available worldwide in several languages. Watson (see above) concludes, however, that students tend to experience such motivation in exploring sites for their own personal use but not for school use.

Mary Ann Hindes describes the design, development, and implementation of a Web-based distance learning course at the University of Georgia (USA): Advanced Reference: Online

Searching Techniques. This limited initial study indicates that the students had positive attitudes toward Web-based instruction and that such instruction provided a suitable environment for improving electronic literacy skills. However, the author (as do others in the papers presented here) cautions readers about the preliminary nature of the results and that there is no clear evidence to support specific conclusions. Students felt the course content and delivery were "positively matched" although they missed face-to-face social interaction. The design and delivery of this course underscore the importance of school librarians acquiring current information technology skills before entering service so that they can offer leadership and competence in this area.

James Herring used a questionnaire in 1998 to survey school librarians in the United Kingdom and South Africa. The results provide a snapshot of Internet use in school libraries in those countries. They indicate that the Internet was not then as firmly established in school libraries as in the schools themselves, that school librarians used the Web for curricular and professional purposes, that geography and science teachers used the Web more than teachers in other fields, and that the concerns of practising school librarians about the future of the Web were similar to those expressed in the professional literature: information skills development, the future role of the school librarian, supervision, plagiarism, and support. A similar survey taken again in these two countries and/or elsewhere would reveal how use and concerns have or have not changed with increasing use of the Web. But these too would be only snapshots—reminders that the ever-changing nature of the Internet makes it difficult to study and that any generalizations based on such studies are tentative at best.

Anne Clyde's 1996 survey describes the then current state of school library Web sites/pages and reveals little commonality in the goals, design, and focus of those Web sites/pages. Indeed, some seemed to have no discernible purpose or focus. Her study has been replicated and enhanced in 1999 to determine what changes have occurred. (She will present the results of this longitudinal study at the conference in Birmingham summarized, most appropriately, on a Web page.) Clyde makes an important point when she argues that in an era when school librarians are teaching their students how to evaluate Web sites for academic use, there should be clear goals and evaluative criteria for school library Web sites/pages as well.

Part 1:

The Takeshi Murofushi Research Award

Implementing Flexible Scheduling in Elementary Libraries

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Flexible scheduling in school libraries can provide a mechanism for achieving the learning goals and objectives of both the school library program and the curriculum by making information available at the point of need and by promoting use of the library and its services at a relevant moment instead of on a predetermined schedule. This study examined the successful implementation of flexible scheduling in six elementary schools where no funding was received to support implementation. Telephone interviews with librarians, principals, and teachers provided the data. The preliminary results indicate that, in those schools with successful implementations, flexible scheduling was only a tool to achieve another internal curricular objective, such as curriculum integration or literacy improvement. In addition, education of stakeholders is essential; and it must emphasize strategies for effective use of the programs supported by flexible scheduling and their potential learning outcomes rather than simply provide information on how flexible scheduling works.

Introduction

Based on a history of educational research showing that learning is most effective at the point of need, flexible scheduling in school libraries can be seen as an effective model for achieving the learning goals and objectives of both the school library program and the curriculum. Jean Donham van Deusen and Julie Tallman studied flexible scheduling through a national survey funded by the AASL/Highsmith Research Grant in 1994. Their research provided valuable information about the extent of flexible scheduling in school libraries and the degree to which curriculum consultation and information skills instruction occurred in school libraries using fixed, flexible, or mixed scheduling. They found that more positive environments for curriculum consultation and teaching activity existed where a) principals expected team planning in libraries with flexible or mixed scheduling, b) principals expected school librarians to meet with teaching teams, and c) librarians were fulltime and did not cover teacher planning time. They also found that collaboratively planned and taught units were more common in flexibly scheduled libraries where at least one formal planning session occurred (Donham van Deusen & Tallman, 1994).

In 1997, a study by Ken Haycock of Canadian school libraries confirmed Donham van Deusen and Tallman's findings. He suggested that flexible scheduling might be "more indicative of leadership practices and collaborative activities than having a causal relationship with consultative tasks" (Haycock, 1998, p. 23).

These findings are useful as support for implementing flexible scheduling in order to encourage curriculum consultation and effective information skills teaching. However, little is known about effective implementation of flexible scheduling. Based on her previous research,

Donham van Deusen suggested that several conditions must exist for flexible scheduling to be implemented successfully. These are:

- an information skills curriculum matched with the content area curriculum
- flexible access to the library media center
- team planning
- principal expectations for collaboration with teachers
- a commitment to resource-based learning (1995, p. 17-18)

Donham van Deusen also suggested two factors that might enhance flexible scheduling implementation: adequate support staff and an assessment plan for the school library media center (1995, p. 18). There has been non in-depth study of the actual importance of these factors, however.

Library Power, a project funded by the DeWitt-Wallace Readers Digest Fund, created flexibly scheduled school libraries in nineteen communities across the United States. Dianne Hopkins and Douglas Zweizig have evaluated this program through case studies, questionnaires, and extensive documentation of practice. Flexible scheduling was a requirement for participation in the Library Power program and the evaluation showed that "for many ... teachers, experience with the flexible schedule was required for them to have some sense of the benefits it could bring their teaching" (Zweizig, 1999, p. 20). Principals were often credited with making flexible scheduling work by providing strong support and by devising creative solutions to the problem of providing planning time for both teachers and librarians (Zweizig, 1999).

Donna Shannon investigated the development of flexible scheduling in two Library Power schools in Kentucky. She, too, found that changing the way teachers think about scheduling their classes into the library was the biggest challenge (Shannon, 1996). These studies reveal a great deal about implementation of flexible scheduling in situations where significant monies are provided for such implementation. Most schools around the world, however, do not receive extra funding contingent on implementing flexible scheduling. In schools where no mandate related to funding exists, how and why does implementation of flexible scheduling occur? What effects do school librarians, administrators, and teachers observe in these situations?

This research project examined the implementation of flexible scheduling in elementary schools where the incentive for implementation was not access to additional funding. Elementary schools were selected for study since flexible scheduling seems to have been more difficult to implement there than in secondary schools. The purpose of the study was to explore effective flexible scheduling implementation in elementary school library media centers, to determine how successful implementation occurs, and factors that impact that success. When school-based stakeholders (librarians, teachers, and administrators) agree that flexible scheduling has been successfully implemented and has positive benefits, on what do they base that claim? While the study did not strive to prove outcomes of flexible scheduling, such as the impact of flexible scheduling on learning, it does include anecdotal evidence of some of those outcomes.

Research Questions

The primary objective of this pilot study is to add to the knowledge of what makes flexible scheduling work, so that elementary school librarians struggling with implementation can determine the source of their implementation problems and better identify solutions. It provides a basis for further exploration of the concept. The study also includes an examination of the impact of this implementation process on learning, as well as the variables that impact implementation itself.

The specific research questions were:

- Why was flexible scheduling implemented in elementary schools where funding was not contingent on flexible scheduling?
- What factors influence the implementation?
- On what do stakeholders base their claim for success of the implementation?

Methodology

A preliminary Delphi study established the concepts and ideas to be explored during the current study. Delphi participants were district coordinators who had been instrumental in implementing or expanding implementation of flexible scheduling in their school districts. These experts provided rich data on many aspects of flexible scheduling implementation, such as support for flexible scheduling; the necessity and effect of pre-existing factors; the importance of teachers' and school librarians' understandings of the concept and the advantages; ongoing needs during implementation; barriers to implementation; and the importance of a number of variables such as school size, clerical help, and teaching philosophies. These responses were used to frame questions for participants in the current study.

Population

The current study, partially funded by the IASL Takeshi Murofushi Research Award and the AASL/Highsmith Research Grant, involved personnel from six schools in widely dispersed school districts and with diverse characteristics. School librarians were identified as the primary source of data for this study, and also as the logical gatekeepers to approach to find participants. Several expert groups in the United States provided suggestions of school librarians working in schools in which flexible scheduling had existed for at least two years, and in which the current school librarian had been responsible for implementation of flexible scheduling. In addition, the schools were not part of the Library Power initiative. The leadership of the American Association of School Librarians, school library educators, and the original Delphi participants made recommendations. Potential participants were also invited to identify themselves through the LM_NET discussion list. Together these sources identified twenty-one school librarians as potential participants in the study. Criteria to select the final six participants were:

- flexible scheduling must have been in place for at least two years
- the principal was willing to be interviewed
- the current librarian had been responsible for implementation of flexible scheduling
- the librarian believed that there would be substantial agreement among teachers and administrators that flexible scheduling implementation had been successful.

School librarians were contacted and asked to respond to the first three criteria. If those criteria were met, then all teachers in their schools received a simple, one-question questionnaire that stated "The implementation of flexible scheduling in our library has been successful" and were asked to choose a response ranging from Strongly Agree to Strongly Disagree. Schools in which the responses indicated 75% or more agreement with that statement were selected. The final determination was based on attempting to represent a wide variety of situations so that many who would potentially use the findings might have a basis for comparison. Obviously, it was impossible with such a small sample to represent all variations.

Table 1. Participant schools.

Public/ Private	Grades	Socio-economic or Other Relevant Descriptor	Number of Students	Number of Classroom Teachers	Number of Librarians	Support Staff Time
School #1 Public	K-5	Primarily middle-to-high	560	19	1	1.3
School #2 Public	K-6	Mixed; over half low-middle	Not available	22	1	1
School #3 Private	PreK-8 (data collected re PreK-6)	Gifted students	310	17	1	2
School #4 Public	K-5	Low-middle	220	10	.5	.5
School #5 Public	K-4	Middle-upper middle	600	26	1	1.5
School #6 Public	K-6	Mixed	700	29	1	none

Table 1 shows the great variation among the selected schools. Only pre-kindergarten (PreK) to 6 were included in data collection, although schools represented several different grade ranges. The schools varied in size and in source of financial support. One school had no support staff and another had only a half-time librarian. One school had a strong reading incentive program in which the library was heavily involved.

Telephone interviews were conducted with the librarian, the principal, and a stratified random sample of three teachers from each school—one from PreK to grade 2, one from grades 3-6, and one from the entire list of teachers. The interview questions, determined from the responses in the Delphi study, were open-ended and qualitative, allowing respondents to expand in whatever direction they felt was appropriate.

Librarian Interviews

The librarian interviews were the most comprehensive, ranging from one to two hours. Most of the principal interviews took from twenty to thirty minutes, and teacher interviews lasted about fifteen minutes. A planned second interview with librarians, for confirmation, expansion, and elaboration had not occurred at the time of writing this paper.

Librarians were asked to provide an overview of flexible scheduling as it currently exists in their schools. They described how it works; whether any other kinds of scheduling are also used (e.g., fixed scheduling for kindergarten students); whether and how much support staff is available; how teacher planning time is provided; what kind of support exists for the concept in the administration, the teachers, and the district. They described the planning stage by explaining how the idea came about, what initial support was available, what planning process was used, and what problems had to be considered. They discussed problems that occurred during the implementation phase and what understandings were the most difficult to communicate to teachers during that phase.

Librarians were then asked about their personal characteristics that affected implementation, their reaction to change, and what kinds of relationships they had had with teachers at the time of implementation. They described the personal characteristics of teachers who work most effectively in a flexibly scheduled atmosphere, how the teachers plan and teach, and what teachers had to learn in order to make effective use of flexible scheduling. They were asked to describe principal characteristics that best supported implementation and what principals had to learn. They were asked about support from the district, from students, and from parents.

Librarians were also asked to discuss how things had changed during the years of implementation. How had the support changed? What staff development was carried out? How did collaborative planning occur? How much contact did the librarian have with students? How were records kept of information literacy? They were asked to indicate if they perceived any difference flexible scheduling had made to learning and what difference it had made to their jobs. They described barriers to continuing with flexible scheduling and the financial costs involved. They discussed the importance of the size of the collection, the size of the facility, the size of the school population, the amount of clerical help, the way teachers teach, and their own teaching philosophies. They were asked to discuss their hopes and fears for the future: what changes would they like to implement and how? They were asked to provide advice to librarians wanting to implement flexible scheduling with and without the support of the principal.

Principal Interviews

Principals were also asked to define and describe flexible scheduling as it works in their schools. They described their roles in implementation, why they had supported flexible scheduling, and what their prior knowledge and experience had been. They described the demands made on a principal; the advantages and disadvantages of flexible scheduling; the benefits to students, teachers, and librarians; the implementation process; the problems they had dealt with, and the solutions to those problems; and the fiscal implications of flexible scheduling. They identified characteristics of librarians and teachers that make flexible scheduling work. They described their perceptions about differences brought about by flexible scheduling, such as differences in their own thinking, in the way their teachers teach, and in the student learning or behavior. They provided advice to administrators and librarians considering flexible scheduling.

Teacher Interviews

Teachers were asked to define flexible scheduling and describe how it affects them and their students. They were asked to identify benefits and problems associated with flexible scheduling. If they were in that school during implementation, they provided their impressions about how it took place and described how they had felt about the idea initially. They then described whether and how their feelings or their teaching had changed, the professional development they had received, and how their students gained information skills.

Results/Findings

Findings at the time of writing this paper are preliminary, since circumstances forced postponement of the final stage of interviews with the school librarians. A number of patterns have emerged at this point, however, which will be confirmed and expanded with this final set of interviews.

Participants were not given a definition of flexible scheduling, since the term has many interpretations and variations of use. Instead, they were asked to provide their own definition and to explain how flexible scheduling works in their schools in order to get a sense of the variations that existed among the different sites. Each participant answered this question a little differently, with some emphasizing learning outcomes that result and some emphasizing flexible access to materials. The application of flexible scheduling varied from some fixed at the lower grades to complete flexibility at all grade levels.

Principal's descriptions of flexible scheduling typically dealt with access for students at the point of need, although one principal saw it as a way for teachers to be able to plan and conduct resource-based units for their students. They emphasized meeting needs at the appropriate time and the ability to provide constant and consistent service.

Several patterns, to be confirmed and/or extended by the final interviews with the librarians, are stated here as preliminary assertions.

The first assertion is that, in each case, a particular educational need drove the move to flexible scheduling. In four schools, the desire to create or further implement an integrated curriculum was emphasized. In one the implementation of flexible scheduling was driven by a strong literacy focus, tied to an intense reading promotion initiative. In the sixth, the push came from a desire to support the curriculum in a more meaningful way, but it also was related to facilitating a strong reading initiative. In all cases the scheduling promoted both of these foci, but the original drive and incentive varied. Flexible scheduling driven by internal curriculum needs contrasts with schools in the Library Power program (Shannon, 1996; Zweizig, 1999), in which flexible scheduling was a requirement for participation in the program. In Library Power schools implementation was driven by an external force (funding) and the link to curriculum or literacy support came as another requirement of the program. In those schools, the requirement for flexible scheduling to be in place might have created the opportunity to make curriculum integration work. Teachers, however, might have seen flexible scheduling as an end, not a means. Flexible scheduling in all cases in the present study was only an instrument, a tool to make something else work. It was never an end in itself. While flexible scheduling and the other element for which it was implemented might have happened concurrently, flexible scheduling did not cause the other element. This fact seems to support Ken Haycock's suggestion that the existence of flexible scheduling may say more about leadership practices and collaborative ideas than it does about why consultation occurs (Haycock, 1998). In all cases, flexible scheduling only provided a means for consultation between teachers and librarians to take place. It did not cause that consultation to happen. The fact that flexible scheduling existed could be attributed to the leadership of various people in the school, and to the acceptance by at least some of the stakeholders of the idea of collaboration.

Another assertion is that the principal's support was critical. Librarians emphasized this and described ways in which that support was provided. Principals, too, were aware that their support was key in the successful implementation. Interestingly, in one case, where the librarian was not completely satisfied with the support that the principal had given, the principal in that case stated strong support for the concept of flexible scheduling and believed that sufficient support had been provided. It seemed that the two did not have the same definition of principal support! While the librarian wanted the principal to be vocal and active about the support, requiring teachers to cooperate, the principal believed that support had been provided by concurring with the strategies the librarian planned to use. The principal believed that more active involvement was unnecessary because the librarian was doing such a wonderful job. Better communication between principal and librarian of how each perceived appropriate support would have helped both to understand the reactions of the other and perhaps eased this librarian's concerns.

Tied to this need for a principal's support is the need for education of principals. Most principals admitted that they had little or no knowledge of the concept of flexible scheduling before the idea was broached by their librarian. They described the education they received from their librarians and emphasized that the benefits to students was the selling feature. Some of the librarians described the need to convince their principals of the value of flexible scheduling by making them familiar with successful examples, either in person or through reading articles.

A third preliminary assertion is that implementation was less stressful when the schools devised acceptable alternatives to providing teacher planning time. Traditionally, teachers get planning time when specialists take over classes to relieve the teacher of direct teaching responsibility for a period of time. Often the librarian has been one of the specialists involved as students rotate through the various specialists' subjects. Where creative solutions were implemented to take librarians out of this rotation, teacher objections seemed to be fewer. One school, for example, created a science lab time, which complemented a current thrust to improve students' science skills. The principal emphasized, however, that this was a staff decision, not the principal's alone. The decision was made because teachers were interested in making better use of their library media center and were willing to have slightly larger classes to accommodate the changes. Another school provides a frequently changing elective program, where all teachers and staff (and some parents and other community members) offer interesting options for students. During this option period, teachers take turns at using the time for their planning and do not offer an option on that day. Another school increased the subjects included in the rotation by adding a computer program and a literacy program to the typical art, music, and physical education classes.

A fourth assertion is that the personal qualities of the librarian appeared to be very important to successful implementation. Principals extolled their librarians' virtues and suggested that flexibility, energy, a sharing and facilitating mindset, competence, persistence, awareness of national trends and best practice, a sense of humor, enthusiasm, and an ability to deal with many different kinds of people were all important. The most commonly mentioned characteristic was flexibility. The librarians described themselves as enthusiastic, energetic, organized, accommodating, reliable, inquisitive, risk-taking, willing to experiment, not uncomfortable with change, hard-working, and willing to compromise and adapt to meet teachers' needs. Again, the characteristic that kept recurring in many of their answers and anecdotes was flexibility. Teachers also mentioned flexibility as an important characteristic of a librarian who wishes to implement and successfully carry out flexible scheduling.

Most stakeholders identified support staff as playing a crucial role in successful implementation, because services could be provided that enable librarians to work directly with teachers and students. Surprisingly, though, one librarian has no support staff and minimal volunteer assistance. In spite of that, she is able to carry off a relatively successful flexibly scheduled program that emphasizes curriculum integration. She did agree that having support staff assistance would make the program much easier to conduct successfully and expressed a wish for more assistance. She was prepared, however, to deal with a projected increased student population in the coming school term, which would mean a growth from 250 to 900 students since she began flexible scheduling several years ago.

Each school was in a slightly different situation as the idea of flexible scheduling was broached. In each case, the approach to implementation varied depending on the situation (the sixth assertion). In some cases, curriculum integration was mandated from the district administration, and schools were expected to follow the mandate. In these cases, the mandate was intended to increase the role of the librarian in curriculum integration and resource-based learning. Flexible scheduling was instituted to make this type of teaching and learning possible. In these cases, the approach to implementation was simply to work out whatever problems might arise and institute the program across the board. Teachers were given some professional development at the beginning to promote effective use of the library under the new form of scheduling. In other cases, the librarian knew that rigid scheduling did not provide the best learning situation for the children and became determined to bring about change. The approach in these cases was more evangelistic, with the librarian convincing the principal first and then at least some of the teachers that the idea could work. Sometimes flexible scheduling was implemented gradually, perhaps a grade at a time. Although convinced by the librarian that the idea was sound, one principal waited for the right moment before she pushed for flexible scheduling. When a committee of teachers examined another school program and recommended change, she realized that not only was this the right moment to bring in flexible scheduling, but also it was the moment to move the library to the room vacated by the other program, a move that made concurrent multiple activities in the library possible. This principal maintained that if the implementation of flexible scheduling had not occurred at the right moment, it would not have had the success it did. In all cases, the librarian believed in the value of the change at the beginning, whether or not anyone else did.

A seventh preliminary assertion, based only on perceptions not testing, is related to the difference flexible scheduling (and its related curriculum innovations) has made to students. Stakeholders described students as being more motivated and exited about learning, They suggested that learning and the library are both more relevant to students because they know they need the information and the skills related. Children have changed from being passive recipients of knowledge to being active learners. Students now consider the library as a primary source of information, not an afterthought.

Another assertion is that librarians and principals typically perceived the costs of flexible scheduling differently. Most librarians identified no fiscal implications to flexible scheduling, or suggested only that an improved collection was a potential cost. Principals recognized the need for improved collections, but several also pointed out the cost of support staff and of maintaining a full time librarian.

A final preliminary assertion is that acceptance typically comes slowly. Though some of these librarians were tempted to abandon the idea because of resistance from teachers, they all expressed the importance of persisting, of not being discouraged by seeming indifference or resistance, of looking for small successes and building on those over a period of years, not just months. While they did not name patience as a virtue, they certainly could have done so.

Recommendations from Participants

Librarians, principals, and teachers were all asked to make recommendations that would promote successful implementation.

- Visit successful sites together to study how to implement effectively. Include principals, teachers, and librarians in these visits.

- Form district committees of teachers to study the concept and bring the study's findings back to the school
- "Just wait for the right moment and then seize it" (principal quote).
- Teachers do not know how to take advantage of the situation; they must be taught how to make the best of it.
- The librarian will have to make something happen in the beginning. Actively seek out people to with whom to plan or the place will be empty.
- Keep a visible public schedule so everyone can see what's happening in the library.
- Loan out rotating and constantly changing classroom libraries to provide regular access to a collection of reading material. Teachers might be more comfortable with their classes not coming to the library for a weekly book checkout if the students have ready access to books.
- Be able to accept disorganization, uncertainty, and change.
- Be aware that you can't please all of the people all of the time.
- Be intuitive—figure out where teachers are, meet them wherever they are, and bring them along a continuum of effective use.
- Plan as a district to continually educate new superintendents and administrators.
- Plan to educate new administrators and teachers locally.
- Conduct inservices for each other in other schools.

Preliminary Conclusions and Recommendations

It is difficult to draw conclusions without having collected the final dataset. However, it appears that in successful cases of implementation, flexible scheduling is only a tool. It is not an end in itself. It is important to promote the benefits for student learning, not the flexible scheduling concept itself. Flexible scheduling is a concept that might be familiar to librarians but is less likely to be familiar to principals and teachers. Education of those who will be affected by flexible scheduling is essential, because they are unlikely to already understand its goals and benefits.

As an illustration, when librarians discussed about flexible scheduling they typically spoke as much about the educational initiative that had driven flexible scheduling in the first place as about the mechanism that had enabled that initiative. When they discussed the difference in students, or the evidence of student learning, they described the effects of resource-based learning or unlimited access to a collection of reading materials instead of limiting their discussion to the concept of flexible scheduling. Teachers and principals, on the other hand, were more likely to discuss flexible scheduling as a separate concept, not necessarily tied to an educational initiative. They did describe the independence of the children, the willingness to search for information to solve a problem, the switch from a passive to an active learning role, but typically did not make the point that the change was related to an educational initiative as much as it was to the change in scheduling practice.

Caution must be exercised in generalizing from these findings and conclusions. Not only are they preliminary, they were based on a very small sample. Some early recommendations do seem to be in order, however, with the proviso that anyone attempting to follow these recommendations be aware that their own situation might not parallel the schools in the study.

Librarians hoping to implement flexible scheduling will need to promote the program, not the schedule. They must promote the concept of flexible scheduling in terms of what teachers (and students) stand to gain. Librarians must convince teachers that they can provide a service that teachers need and that flexible scheduling is an effective mechanism to provide this service. Education of administrators and teachers is crucial, again emphasizing the benefits to learning. Librarians can provide principals and teachers with reading material to begin the educational process. They can also "model" the results by working with a single teacher or grade level to demonstrate the process and the benefits of flexible scheduling. This should lessen the concerns of principals and teachers and inspire other teachers to get involved too.

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Part 2:

"Unleash the Power!"

Connecting Marketing and Implementation Research and Library Program Development

A Case Study of the Implementation of National [U.S.] Guidelines and Standards

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The American Association of School Librarians developed a detailed plan, with more than 30 specific objectives and more than 75 target audiences, for the implementation of Information Power, *the 1998 national guidelines for effective programs. Clear delineation of responsibilities at the national, state, district and school levels was a key part of the plan. Marketing research allowed the Association to increase sources of information for planning and to report that information more clearly and consistently, to reduce error and to manage the Association's marketing program more aggressively. Research from the implementation of change and effective staff development was incorporated in the training for state coordinators. Implementation is now underway with documented achievement of the early objectives.*

Introduction

In the current political and economic environment, library associations have been focusing on advocacy, recognizing that the long-term survival of libraries of all kinds is at stake. Libraries have long had a fundamental role as centers of knowledge and cultural identity and symbols of intellectual freedom but the integral role of libraries in society is being undermined by low visibility, passive community support, and the myth that books, libraries and librarians will be replaced by computer terminals and virtual connections. Although the public regards library services as essential, decision-makers regard them as "soft services" (Cavill, 1997).

Research shows that school libraries and teacher-librarians have a positive effect on student achievement (Haycock, 1995) yet concerns about continued school library services are also apparent. Over a two-year period, however, the American Association of School Librarians (AASL) found itself in an ideal position to develop a national advocacy plan, based on current marketing and implementation research, for the implementation of new national guidelines and standards. *Information Power: Building Partnerships for Learning* (AASL/AECT, 1998) had been three years in development to articulate the role of the library media specialist (teacher-librarian) in collaboration, technology, and leadership and to define standards for student competency in information literacy.

The need for an effective, coordinated approach to implementation of the new guidelines and standards had been identified from the outset, and library media specialists and their state associations were looking to AASL for leadership in this area.

Research Questions

(1) What market research is required for planning for the implementation of *Information Power* (AASL/AECT, 1998)?

(2) What are the issues that need to be addressed and the target audiences required to effect change? How might these best be identified and reached?

(3) What are the implications of research in program implementation and staff development for the implementation of these national guidelines and standards?

Methodology

Marketing research provides a systematic, objective approach to the development and provision of information for decision making regarding a specific marketing problem, in this case the need for library media specialists and programs. The marketing plan requires a determination of information needs and use of both primary and secondary sources.

In order to develop a coordinated approach across the country the primary source of information for gathering information and responding to draft plans was the Affiliate Assembly (AA) of the AASL. This Assembly consists of representatives of state and regional school library media associations.

The Affiliate Assembly represented both a convenience and judgement sampling whereby respondents were selected partly on the basis of the researchers' judgment. As a reference group the AA represented individuals and organizations who influence individual attitudes and behavior, that is, they provide a reference point for evaluation of one's own behavior. As leaders in their states, the representatives to the AA were opinion leaders in the profession as well as in their organizations.

Through both focused and open-ended questions in face-to-face and telephone interviews, the researchers began to define and redefine the problem, learned what further questions to ask, determined how they should be phrased, and came to understand what answers to expect. From these interviews, draft plans were developed for presentation to the Assembly.

Sources of information included professional marketing and implementation consultants, representatives of the target audiences, colleagues inside and outside the parent Association (e.g., the president of the American Library Association (ALA), the director of the ALA Public Information Office), public documents and association web sites, vendors and suppliers, and the related professional literature in staff development and training, implementation and marketing.

The main documents analyzed in the review of secondary sources of information were the Association's existing record of research through surveys of the field, literature reviews, and the expert opinion and recommendations of task forces and groups.

In marketing terms, the Association needed a strategic plan of at least five years duration with a "product relaunch" to focus on finding untapped market segments and new ways to stimulate increased understanding, support and use of school library media specialists and programs as delineated in *Information Power* (AASL/AECT, 1998). The plan would specify resource requirements, costs, expected benefits, and activities necessary to achieve the Association's goal(s).

Implementation research provided an understanding of the common elements for furthering the Association's agenda. Different levels of implementation might be categorized as

- initiation, implementation, and institutionalization, or as
- awareness, understanding, acceptance, commitment, and renewal.

In each case it was obvious that awareness-building activities, while important, can only be considered a first step in the initiation of change (Haycock, 1993); examples include articles in journals read by the target audiences and presentations at their conferences.

Similarly, the training of leaders in advocacy and implementation would need to model the elements of effective staff development—presentation of information or theory, demonstration of the change(s) sought, opportunities to practice and to gain credible feedback, and continued coaching through a combination of both pressure and support for change (Haycock, 1993).

Effective marketing of national guidelines and standards, and the development of a network of advocates and trainers, would require considerable leadership, time, and resources.

Findings

An examination of the current and recent work of the Association showed some convergence of philosophy and activity for a national implementation and advocacy plan. The Association contracted with a major marketing research firm to undertake a survey of the profession (PCI, 1996), including both members and nonmembers. This study pointed to critical needs for effective continuing education and a long-term advocacy program. The report

- affirmed the continuing education requirements of library media specialists;
- identified time and money as chief barriers to professional development;
- made suggestions for improved communications; and
- identified a need for a long-term advocacy and public relations program.

The AASL Continuing Education Plan, also completed in 1996, provided a research-based, philosophical framework for professional development activities. It specifically noted that such activities must be centered in school reform efforts directed toward standards-based education for students and teachers, must focus on improved student achievement, must be job-embedded and part of a coherent long-range plan, and must involve shared decision-making. Further, professional development activities must make best use of new technologies, model desired teaching practices, reflect research, provide time for inquiry, reflection and mentoring, and be continually assessed based on results and adjusted as needed. The primary audience was the building level library media specialist (AASL, 1998, Appendix B).

The AASL Advocacy Task Force, working in 1997, used the impending release of new national guidelines and standards as the impetus and content for a national advocacy campaign with training modeling the principles for effective staff development. They

- affirmed the concept of advocacy first to the school library community;
- supported the concept of advocacy training on national, regional and state levels;
- recognized the importance of the responsibility of the individual library media specialist;
- recognized that the decision-makers who need to be influenced are themselves, adult learners.

The Association's Implementation Task Force similarly identified the need for advocacy training in 1997 and included a number of public relations tools. They also recommended ways to involve building level library media specialists (AASL, 1998).

Other groups within AASL also had an advocacy component to their activities.

There were enormous opportunities for coordination, cooperation and strength in numbers. Equally, there was enormous potential for duplication of effort, too many messages, mixed messages and "stepping on toes" if such coordination did not occur.

The fact that advocacy was high on the list of many within AASL was in itself very positive. It meant that the membership was becoming more aware of the need for advocacy and more ready for action.

AASL was in danger, however, of getting caught in some classic communication pitfalls by:

- concentrating on "getting the message out" rather than assisting in advancing the agenda of the target audiences to be reached;
- focusing efforts on telling decision-makers how important school libraries are and about the critical role of the library media specialist, not realizing how self-serving that sounds to decision-makers;
- confusing marketing with public relations and promotion;

- spending limited resources on expensive communication tools (brochures, videos, etc.) without assessing the needs of the target group or providing measures for evaluating whether the tools actually contributed to awareness, understanding and action; and
- "dusting off" some of the successful promotional activities from the last time that *Information Power* was released (1988) without a clear understanding of how the current political and economic environment may require different tools and approaches.

Library marketing tools, techniques and models are considerably more sophisticated and more widely available than before (Weingand, 1987, 1995). More strategic marketing approaches could be taken this time around, with more carefully defined target groups.

The AASL Executive Committee took a close look at all the advocacy-related activities that were being proposed to determine if there was a congruence of purpose, a mutual understanding, and any duplication of effort. They recognized that it was not sufficient, in an era of tight resources, to have groups doing similar things merely "letting each other know what they are doing." This meant taking a close look at the role and function of each group and redefining the advocacy component. It meant that leadership and direction had to come from the Executive Committee as they took a greater role in advocacy themselves.

The AASL Executive Committee served as a "jury of expert opinion" to estimate potential for coordination and congruence and to reach consensus. Marketing specialists (Ries & Trout, 1993) suggest that the greatest marketing successes often come from "a single bold stroke", and the AASL Executive Committee did just that. They created a new structure that allowed all advocacy and related activities to be strategic, accountable, and carefully measured, using only one consistent planning model. This new structure was called the Presidential Task Force on the Implementation of the New Standards and Guidelines. The group was charged with developing the national plan as a major focus for the next five years, and resources would be identified and appropriately assigned to it. All of the other committees and task forces were disbanded.

The new Task Force was chaired by an implementation and staff development specialist (Ken Haycock), and the marketing consultant (Pat Cavill) was retained by the Association. The Task Force reflected both members with solid track records in the former committees and geographic and work environment nonprobability stratification. The Task Force used the tools of marketing research to take a systematic, objective approach to the development and provision of information for decision making regarding the specific marketing problem (the need for school library media specialists and programs). The Task Force also served as a reference group to influence individual attitudes and behaviors.

The Task Force began with the consultant delineating the differences among public relations, including promotion, and marketing and advocacy. Public relations consists of getting the library's message across: "this is who we are and what we do, this is when and where we do it and for whom..."). Marketing, on the other hand, is finding out what the customer needs: "who are you, and what do you need, how, where and when can we best deliver it to you—and what are you willing to pay?"). Advocacy involves building support and awareness incrementally over time and connecting agendas and priorities: "your agenda will be assisted by what we have to offer…"). AASL needed to focus on connecting agendas with the target audiences, e.g., school principals, to be reached rather than on simply producing communication tools to "get the message out". It was clear that all parts of the AASL did not have the same definition of advocacy and an understanding of how it differs from marketing and public relations.

The Association had engaged the marketing consultant to work as well with the Affiliate Assembly to identify the strengths, weaknesses, threats, and opportunities in the current political and economic climate. A "summit" of representatives was held in February, 1997 with a second national session for refinement of needs, requirements, and directions in July, 1997 and with a third to respond to a draft plan in January, 1998. Specific suggestions and recommendations were incorporated in draft documents. Descriptive information emerged about markets and competition with perceptions of cause and effect. These perceptions corroborated the PCI study (1996) and were validated through personal interviews and the consultant's prior and current work with focus groups of library users and administrators. A further series of open ended questions enabled elaboration of the concerns and possibilities for participants.

The Association adopted one planning model (see Appendix A), which had been developed and successfully used by the consultant for more than 20 years (Cavill, 1984). The model enabled market segmentation and development of a separate marketing program for each group. The overall goal was to communicate effectively with decision-makers to establish a distinct place for school library media specialists in their minds, that is, to position school library media professionals as an essential fixture on the educational landscape.

Market segmentation is a marketing strategy in which a large heterogeneous market (e.g., "school principals") is broken down into small more homogeneous segments (e.g., elementary, middle or secondary school principals, at the local, state or national level), and planners develop and implement a unique marketing mix for the target segment(s). Positioning is a process in which the marketer communicates with consumers to establish a distinct place for its product or brand in their minds.

Marketing research mirrored implementation research in attitude development—from no awareness of "the product", i.e., the appropriate role of the library media specialist; to awareness of the product; to actual knowledge of the product; to liking the product; to a preference for the product, e.g., in the face of competing demands or approaches; to an intention to act on the preference; to an actual "exchange" whereby the administrator or teacher engages the library media specialist for a collaborative exchange of expertise and particular contributions (Lavidge & Steiner, 1961).

Here the "product" [library media specialists] is a combination of the features that enable library media specialists to impact student achievement and positive, collaborative work environments. The new guidelines and standards enabled the "product relaunch" to find new untapped market segments and to stimulate increased or different uses by existing customers, e.g., teachers, and the "product development," in this case effective staff development based on research and best practice in the profession, to enable library media professionals to implement the expectations articulated in the guidelines.

The resulting draft plan formulated the problem, segmented the market to ensure that all audiences were identified and a separate marketing program developed for each. It also determined "smart" objectives that were specific, measurable, active, relevant, and timed, with clear accountability for completion. Evaluation would match objectives, rather than simply determine whether activities were completed. A single common message would be used throughout--*Information Power*: Because Student Achievement *Is* The Bottom Line.

In January, 1998 the 80-page draft plan, with more than 30 specific objectives and more than 75 target audiences, was endorsed, with some modification, by the AASL Affiliate Assembly and the AASL Board of Directors. The plan included the determination of priorities and allocation of resources and a clear delineation of responsibilities at the national, state, district and school levels. The Affiliate Assembly affirmed that the resulting plan (AASL, 1998) met their needs and responded to their requests and requirements.

Results

The marketing plan (AASL, 1998) includes more than 30 specific objectives, each with target groups, including AASL's members and non-members, strategies, timelines, communication tools and evaluation criteria and measures. Responsibilities are delineated for the national, state and local levels. For example, for school principals, AASL has responsibility for national associations such as the National Association of Secondary School Principals (see Appendix B), while state library media associations bear responsibility for their state association(s) of school principals. District coordinators and district library media associations have responsibility for school district principals, while the individual library media specialist works with the building level principal.

Objective 10 is the action plan for specific, measurable, active, relevant and timed objectives to enable work with each of the approximately 75 national teacher and library associations. The AASL planning and monitoring charts (AASL, 1999 June) provide the name of the person(s) responsible for each project, progress notes, achievements, and completion dates.

Initial successes include the first annual summer training institute for state implementation coordinators. These targets exceeded each year their objective of ten states participating in 1998 and in 1999. These coordinators develop state level plans with their associations and partner groups that are congruent with the national plan; i.e., they are on message, targeted, and consistent. The role of the state coordinator was clearly delineated (AASL, 1998), and the training institutes modeled the research in implementation and staff development (Haycock, 1993). This research enabled the Task Force to recognize and plan for each discrete phase of implementation requiring time and resources: readiness, preparation, training, implementation, and maintenance.

The plan for the National Association of Secondary School Principals (NASSP) received a boost through a cooperative arrangement of the AASL, NASSP, and the National Forum on Information Literacy, an AASL and IASL partner group. The past president of AASL was invited to guest edit a special issue of the *NASSP Bulletin*, with 44,000 secondary school principal subscribers, on information literacy and the new guidelines and standards (Haycock, 1999). It is important to note, however, that publications as a communication tool need to be reinforced and moved from awareness to action. Other successes are being identified, celebrated and built on as the marketing plan moves forward.

Descriptive studies were selected for the first phase of implementation, with information about markets and awareness- and commitment-building plans and projects. Causal studies will be undertaken in three ways: through observation, including collection of statistics of attendance and improved support; through experiment, identifying one target group with one variable and a control group; and through surveys, employing personal interviews, questionnaires, and focus groups.

Conclusion

Careful planning and marketing strategies allowed the American Association of School Librarians to increase sources of information and to report that information more clearly and consistently, to reduce error and to manage the Association's marketing program more aggressively. Clear timelines and assigned responsibility ensured implementation, and ongoing monitoring and adjusting assure relevance and effectiveness. Implementation is now underway with documented achievement of the early objectives.

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Appendix A

PLANNING MODEL

Objective:

A "smart" objective is specific, measurable, active, relevant, and timed.

Target Group(s):

An audience segmentation is very specific.
The most important audience is often the smallest (e.g., the secretary of education).

Strategies:

What?

What are the obstacles?
What will inhibit achievement?

Where?

When?

Who?

Who is going to do it?

How?

The message is *Information Power: Because Student Achievement* *is* *the Bottom Line.*

Communication Tools:

What tool(s) best suits the specific objective?

- face-to-face meeting?
- video?
- brochure?
- telephone conversation?
- a combination?

Evaluation:

Be absolutely certain that your evaluation measures match your objectives and that attitudes and behaviors were changed. How do you know? How will you use this information to revise your strategies? The objective is not simply that the activities were completed, i.e., the video was produced and people watched it.

Appendix B

MODEL PLAN FOR ONE TARGET GROUP:

NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS

Objective:

To introduce the guidelines and standards to the national educational and administrative organizations which will have the most influence over their implementation.

This will be a priority activity for 1998 and 1999.

One individual/group took responsibility for each national organization following the gathering of the preliminary data as outlined for the association template (AASL, 1998). This template provides specific directions for gathering information about each of 75 associations, including contact information, current executive board, publications, conferences, professional development programs, current priorities, and other useful information.

State affiliates developed similar plans for state organizations and coordinated activity at the district level.

This planning model can be used any time a national or state association or organization is targeted.

TARGET GROUP
National Association of Secondary School Principals [NASSP]

These are some of the questions to which we need answers:

- How large an organization is the NASSP?
- Where is it headquartered?
- Who is the Executive Director; who is on its Executive Board?
- Where do they meet, what time of year?
- What is its decision-making and communications structure?
- What sorts of activities does it carry out? When is the annual conference and what is its planning cycle?
- What continuing education activities does it typically sponsor?
- What have conference programs featured in the past two or three years?
- Does it do research or provide incentives for research? What are its research priorities?
- Does it have a newsletter or journal, and can we get copies from the past two or three years?
- What are the major issues?

- Where are the Executive Members from? Are any of them from places where we have strong AASL members, strong local champions or strong school library media programs? Are any of them former library media specialists, or married to them? Are any of them from places where the reverse is true? (e.g. not much school library support?)
- Have library issues featured anywhere on its agenda in the past few years?
- What collegial relationships do they have to other national associations?
- Do they have a catalog of publications? Would they distribute *Information Power?*

Much of this information is available from the associations' websites and reference works; other information can be gained through telephone calls. Individuals will need to assume responsibility for gathering this information from the various associations and move forward to develop specific and concrete plans.

Once we have answered all these questions we are ready to move into Strategies.

STRATEGIES

What?

What are the obstacles that could get in the way of our achieving our objective? These will be very dependent on the answers we get to the above questions. If our research shows that

- a couple of the key Executive Members come from areas of strong school library programs,
- libraries have been mentioned as an emerging issue at conferences and in the newsletter,

subsequent strategies will be quite different than if our research shows that school libraries have never appeared anywhere as a concern, or the President comes from an area of the country where school libraries are in serious decline.

The obstacles we should consider will fall under the following categories:

Physical: Are the key people in NASSP in easily accessible parts of the country to AASL leaders? Who are the member leaders? What about time zones? What time commitment can AASL Executive members and staff devote to this? How much money can be spent'?

Personal: Are the members of the NASSP likely to have any negative perceptions of school library media centers or school librarians? What are they likely to know about school libraries and their role? What might their attitudes be? Do AASL leaders have any negative perceptions of NASSP that might unwittingly surface? Do they see these decision-makers as "the enemy" or as potential partners? How might partnerships advance each group's agendas?

Semantic: What are ***their*** buzzwords? What are the key new concepts? What educational jargon has been overused and now has a negative impact?

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***Environmental*:** Does our association and their association have goals that conflict in any way? If we are fighting for the survival of school libraries and they don't see it as an issue, is there an "agenda gap" that has to be closed? If their job is finding new ways to finance education, how receptive are they going to be to a message asking for more support for school libraries? We must provide them with solutions to some of the problems they are addressing. If attitudes are negative toward school libraries, what would it take to change their minds'? What argument can be made that is more compelling than their need to "hang tough" in the current environment? Spend most of the planning time on these three steps:

1. Determine your objective;
2. Identify your target group (and find out everything you can about them);
3. Identify the obstacles.

People do things for *their* reasons, not yours. People pay attention to the things that *they* love and value, not to the things that *you* love and value. If you understand the priorities, agendas and passions of your target group, you will have a better idea of how to motivate them to act on your behalf. Assuredly, it is not a group of school librarians telling them how important the school librarians are. The above steps will tell you a great deal about how to proceed. In fact, the rest of the process falls into place when you have done your homework this far.

When?

Meet their schedule.

Where?

Go to their turf.

Who (will do it)?

Match people carefully for credibility.

Match members in school districts with NASSP leaders.

How? (the message)

Information Power: Because Student Achievement is *the Bottom Line*

COMMUNICATION TOOLS

What communication tools will be most appropriate for the target group, given all of the above? One-on-one communication, if possible, is ultimately going to be the most effective. There can also be cosponsored events and programs, presentations, meetings, videos, promotional materials, new publications [new advocacy handbook? new titles in Lessons Learned series?]

EVALUATION

Measurable objectives mean that activities have to be put in place to ensure that measurements are taken. If you can't measure it, you probably shouldn't be doing it.

- What questions did they ask?
- What commitments did they make?
- Whom else did they suggest that you contact?
- How much time did they give you?
- What kind of follow-up have they requested?

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The United States National Library Power School Program Research Evaluation and Implications for Professional Development and Library Education

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The Library Power Program is a school improvement initiative of the DeWitt-Wallace Reader's Digest Fund that began in 1988. With a total investment exceeding US$45 million, Library Power is the largest nongovernmental funding for school library media programs in over 30 years. It operated in approximately 700 schools and served more than one million students. Library Power sought to create a national vision of public elementary and middle school library media programs through the instructional leadership of the library media specialist, and through partnerships within the district and with the community. An evaluation of the Library Power Program found that the Library Power initiative advanced the notion of a student-centered library media program in a learning community. It showed that given the right conditions, school library media programs can promote positive opportunities for excellence in teaching and learning.

Introduction

Library Power is a nationally funded initiative in the United States designed to promote the full integration of the school library media program into the school curriculum in public elementary and junior high/middle schools. The primary goal of Library Power is the promotion of school excellence in teaching and learning through the school library media program. This ambitious initiative was funded by the DeWitt Wallace-Reader's Digest Fund. The Fund's mission as listed in its annual reports is "to foster fundamental improvement in the quality of educational and career development opportunities for all school-age youth, and to increase access to these improved services for young people." The US$50 million initiative is the largest privately funded initiative for school library media programs in more than thirty years. This study summarizes selected findings of the national evaluation of

Library Power, along with a brief discussion of implications for pre-service and continuing education of teachers, principals, and library media specialists. It also discusses the likelihood of institutionalization of Library Power practices.

Library Power created goals that were an outgrowth of the vision and professional practices recommended in the United States national guidelines *Information Power: Guidelines for School Library Media Programs*, published in 1988 by the American Association of School Librarians and the Association for Educational Communications and Technology. These goals supported the program's emphasis on teaching and learning and the involvement of many in student learning:

- To create a national vision and new expectations for public elementary and middle school library programs and to encourage new and innovative uses of the library's physical and human resources;
- To create model library programs that are an integral part of the educational process;
- To strengthen and create awareness of the role of the librarian as a teacher and information specialist who assists teachers and students;
- To encourage collaboration among teachers, administrators and librarians that results in significant improvement in the teaching and learning process;
- To demonstrate the significant contributions that library programs can make to school reform and restructuring efforts;
- To encourage the creation of partnerships among leaders in school districts, public libraries, community agencies, business communities, academic institutions and parent groups to improve and support school library programs.

Library Power Background

Library Power began in 1988 as a program to revitalize school library media centers in New York City where the Fund was located. The program soon became a national effort. Using a competitive grant process, nineteen communities in the United States were selected as Library Power communities. Each community received US$1.2 million over the three-year period of its grant. Funding for the initiative from the DeWitt Wallace-Reader's Digest Fund was provided to community agencies known as local education funds (LEFs). These tax exempt, non-profit, community-based organizations work to build community support for high-quality public K-12 education. A Library Power Director, hired by the LEF, worked directly with the school district(s) in the community and others, including the district's library media supervisor, to improve student learning through school library media programs.

Most, but not all, of the Library Power communities represented urban environments. The level of library service being provided at the time Library Power grant funds were received ranged from communities with almost no elementary school library media specialists and no school libraries all the way to communities with school library media centers, full-time library media specialists, and district-level library media supervisors. All communities had needs for improving their school library 's role in promoting student learning. Most Library Power communities were single district communities, but three of the Library Power sites were multi-district sites involving several districts in proximity to each other.

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Schools in communities that participated in Library Power were required to have:

- a full-time library media specialist
- opportunities to improve library media collections with matching money from Library Power
- flexible scheduling (student access to the library media center as needed)
- professional development programs for librarians, faculty, and administrators.
- opportunities to improve library facilities to accommodate multiple uses and to be more inviting to its users
- a team at the building level that focused on planning and implementing Library Power goals.

Research Questions and Methodology

An investment of almost US$50 million to promote the central, instructional role of school library programs needed to be evaluated. The central questions of the evaluation were: What are the contributions of the Library Power Program?, and What can be learned from the Library Power Program for the future? The DeWitt Wallace-Reader's Digest Fund sought answers to these questions through a contract with the University of Wisconsin - Madison, School of Library and Information Studies. Following four months of planning, the evaluation of Library Power began in the fall of 1994 with data collection continuing through June 1997. During these years, more than fifty researchers, including school library media program experts, administrators, and other educators comprised the interdisciplinary evaluation effort. This interdisciplinary focus was important because the Library Power program itself involved professionals in a variety of educational roles: library media specialists, classroom teachers, building principals, and district leaders. The use of researchers with a range of perspectives provided an ability to observe and respond to the multiple roles performed in Library Power schools.

In the methodology, standardized observations across the national initiative were sought as well as specific observations that would capture the uniqueness and richness of local experiences. A major emphasis was a mixture of survey and case study approaches.

Surveys were designed for library media specialists, principals, and teachers in Library Power schools. Library media specialists responded to three years of surveys containing a number of constant questions, as well as questions as that were refined as the evaluation progressed. These surveys focused on staffing, collection quality, facilities improvements, collaboration activities, and expectations for continuity beyond the project. In addition, library media specialists were asked to work with their teachers to create and send to the evaluators collection maps that described the current strengths of their collections, and that proposed directions for collection growth that closely aligned the collection to the school's curriculum. Library media specialists also maintained records (called logs) of each collaboration activity carried out with teachers, and sent the evaluators their top five collaboration logs along with a summary of all collaborations in the school year.

All principals in Library Power schools and all teachers from sampled schools were surveyed in 1996 and 1997. Principals were asked about their observations of how the library was being used. Teachers offered their perspectives on how the initiative was working for them.

On these surveys to library media specialists, principals, and teachers, a number of common questions were asked of all three groups, so that the project could be viewed from these different perspectives. In 1997 survey responses were received from 446 library media specialists, 417 principals, and 1,185 teachers, exceeding 75% response rates on all three surveys.

To augment the data obtained from surveys and to get a sense of how Library Power worked in a local context, multi-case sets of case studies were conducted in eight of the nineteen Library Power communities. In each of these eight communities, one case study focused on the project at the community level, looking at the work of the local education fund, and at the functioning of the site team, which consisted of the director of the local education fund, the Library Power director, the district-level library supervisor, and a central office administrator who was usually the assistant superintendent for curriculum. The remaining case studies focused on individual Library Power schools. In all, thirty-four case studies were conducted, eight at the site level and twenty-six at the school level. The general pattern was for case study researchers to make two visits per year, one visit in the fall and another in the spring.

Findings

Based on multiple data sources, including the instruments described above, as well as multiple perspectives that included teachers, library media specialists, and principals, a great deal was learned about the Library Power program. The findings will be summarized below, focusing especially on school library media collections, access, and collaborations.

In terms of collections, Library Power schools, like most school library media centers in the United States, were faced with two common problems. The first problem was that of dated collections, and the second problem was the under-use of the collection for instruction. Library Power addressed both problems. First, the program provided money to match local expenditures for library material purchases. In most instances, funding for library materials in each building doubled. Second, through professional development programs and other incentives, teachers were encouraged to be directly involved in the selection of materials.

Library Power collections improved. Librarians rated 14 parts of the collection for currency and quality. Each area improved, especially picture books, fiction, and biography—those likely to be used in reading improvement or reading motivation efforts. Other collection improvements were found especially in science and technology, geography, and reference. Multicultural materials in the collection also improved. When library media specialists were first surveyed in 1995, 72% rated the collection adequate or excellent in meeting the school's needs in multicultural education. By 1997, 86% of library media specialists rated the collection at this level.

Thanks to the creation of collection maps, several meaningful opportunities for collaborative collection development were introduced. Developed by San Jose University (California, USA) library educator David Loertscher, collection maps represent a systematic approach to school library development based on the actual curriculum that is taught in the school. As a result of discussions between the library media specialist and teachers, library material purchases became directly tied to the curriculum, and teachers became directly involved in determining the collection emphases.

In Library Power schools, 85% of teachers indicated that the collection was better than before in meeting their needs. More than 70% of teachers indicated that the collection supported teacher and student needs well. Throughout the Library Power initiative, teachers became more involved in collection development and used the library collection more in instruction. Most teachers, (81%), felt that they influenced the selection of materials, and even more (89.4%) indicated increased use of the collection in instruction.

There was increased involvement of the library media specialist in unit planning, particularly through the use of the library collection. Library media specialists indicated that they were overwhelmingly (99%) involved in classroom instructional unit development through the identification and gathering of materials and resources. Similarly, more than half of all teacher respondents, 59%, indicated that library media specialists usually participated in instructional units in this way.

The collection was so important to instruction that, unprompted, 64% of teachers named the collection as the most important contribution of Library Power to their teaching. The collection was also necessary to many school-wide reading initiatives, supporting the quantity of resources necessary, offering the variety of resources needed, and providing attractive materials that students were motivated to use.

The study revealed several important themes:

- New collection development practices led to improved collections and expanded use of collections in instruction.
- Strong connections were established between library collections and instruction.
- Up-to-date collections selected by both teachers and library media specialists represented the basis for most collaborations between library media specialists and teachers. The wide availability of appropriate resources is clearly the first basis for collaboration efforts between most librarians and teachers.

The key premise of access in a Library Power school is that library facilities and resources can support instruction best if they are available at the time most suited to a lesson or when spontaneous interests arise. Therefore, flexible scheduling—the ability to use the library when needed—was a requirement to participate in Library Power.

Most Library Power schools, about 95%, had some form of flexible scheduling. About 75% of library media specialists indicated that they had a completely open schedule, while about 20% indicated that there were some regularly scheduled classes in addition to access through a flexible schedule. Case studies were especially helpful in demonstrating the variety of beliefs about flexible scheduling and showing the variety of flexible schedule patterns.

It was found that the degree to which a school library media center can fulfill the intentions of flexible scheduling is strongly related to the center's facility, its capacity, and features. Library Power funding could be used to support minor renovations to the library media center and to add attractive, comfortable furnishings to make the library media center more appealing, in concert with local support. Nearly half of the Library Power schools added more space for comfortable reading. A third added space where students could work on computers and where teachers and librarians could read aloud to groups of students. One fourth of schools added space where individual students could read, view, or listen to library materials. They provided areas where students could work in small groups, large groups, or spaces to allow different simultaneous activities. Overall, more than three fourths of Library Power library media centers, were able to support large and small groups, reading aloud, computer use, and multiple simultaneous activities.

For many schools, there was a clear interaction between the facilities renovations and the degree to which they were implementing flexible scheduling. Libraries that provided more flexible access were more likely to have multiple use space. For example, no libraries that were regularly scheduled added space for individual reading/viewing/listening. Almost 80% of libraries with the capability of supporting multiple activities simultaneously were fully flexibly scheduled; fewer than 60% of those not having such capability were fully flexibly scheduled.

In addition, there was a strong pattern of seating capacity in the library and form of scheduling. Libraries that allowed only regularly scheduled access reported an average of 43 seats; libraries with a mix of access schedules reported an average of 50 seats; and libraries providing fully flexible access reported an average of 61 seats. Thus, it is clear that aspects of facilities and scheduling co-occur in ways unlikely to be due to chance.

A major goal of Library Power is to encourage collaboration between teachers and library media specialists. While school library media specialists have been aware of the importance of collaboration for many years, collaborations in planning instruction with teachers has not been commonplace in schools. Yet both the 1988 and the 1998 U.S. guidelines for the school library media profession demonstrate a recognition of the value of collaboration. For example, in the 1998 guidelines, *Information Power: Building Partnerships for Learning*, the third school library media program learning and teaching principle indicates that the library media program performs and promotes collaborative planning and curriculum development. Goals in this section show that the library media specialist is expected to use the book's information literacy standards for student learning as a basis for curricular and instructional planning. The goals also include the expectation that there will be regular curriculum collaboration with teachers and other members of the learning community.

Nearly all principals indicated that Library Power was at least partly responsible for the increase in collaboration in their schools. Over half of the principals attributed the increase in collaboration directly to Library Power. Overall, over 90% of principals indicated that Library Power, working alone or with other school reforms, was responsible for increasing collaboration. Among reasons for the increase in collaboration were professional development programs for principals, teachers, and library media specialists; time for planning and collaboration; and principal accountability.

Library media specialists reported that before their schools became Library Power schools, they had regularly collaborated in planning or providing instruction with 22% of the teachers in their schools. After the schools became Library Power schools, library media specialists reported in 1997 that they regularly collaborated with over half (57%) of the teachers on the faculty.

Findings from the evaluation based on analysis of data from over 400 schools show that Library Power made a positive difference in collaborations between teachers and library media specialists. Principals overwhelmingly indicated that library media specialists collaborated with at least some teachers to plan and design curriculum and develop the collection. For some teachers, according to principals, the collaboration between the library media specialist and the teacher occurred for the first time. In 1997, 80% of principals reported that at least some teachers at their school had begun to collaborate in planning and designing instruction with the library media specialist. A majority of principals (72% in 1997) also reported that some teachers had begun to collaborate with the library media specialist in developing the library's collection.

While the nature of the collaborations varied, most activities reported in a sample of collaborations were interdisciplinary projects. In most activities, the teacher and library media specialist coordinated a division of labor and responsibilities for instructional activities.

Of special interest was the area of information/library skills instruction. In far too many library media programs that are not integrated with instruction, information skills instruction is an event that is isolated from the school's instructional program. An examination of records kept by library media specialists about their collaborations (called collaboration logs), showed that skills were no longer being taught in isolation. Thanks to collaborations, information skills instruction was systematically being integrated into day-to-day instruction. Collaboration records showed that many information skills areas were essential to achieving the curriculum objectives established by teachers and the library media specialist.

While the results of the collaborations are promising, the evaluation also found that instituting and advancing collaborations throughout a school are difficult. Collaboration requires time in an already full schedule. In addition to the need to learn the skills involved in collaboration, support necessary to create a climate where collaboration is valued is also important.

Institutionalization

As with any effort at school improvement and reform, questions are naturally raised about the extent to which Library Power will leave a permanent mark on teachers' practices and students' learning opportunities. Such permanent impact can be construed as institutionalization—a reform or innovation that has become a regular practice, one that has become part of a school's routine. The evaluation of Library Power looked at the likelihood that Library Power practices would become institutionalized through two approaches. First, survey questions asked librarians, principals, and teachers whether eight aspects of Library Power practice would continue beyond the grant period, and whether they thought they should continue beyond the grant period. In all areas but one, well over 90% of all parties said that they expected that the Library Power practices would continue. In the one exception, all parties were uncertain that the addition of large quantities of new materials would continue. With their experience of boom and bust budgets, librarians were most skeptical: only 50% of the librarians thought that the strong support for new materials would continue. With two exceptions, over 95% of all parties thought all practices should continue; only 85% of teachers thought that flexible scheduling should continue and 90% of teachers thought that on-demand access to the library should continue. With these few exceptions, the participants gave a strong vote of confidence in the continuity of Library Power practices beyond the funding period.

The second approach was to look at Library Power programs two years after their funding had ended to see to what degree the practices were persisting. For example, one of the more controversial practices was that of flexible scheduling, a requirement for participation in the initiative. In 1997, access to 95% of all Library Power school libraries was fully or partially flexibly scheduled. In those schools that had ended their funding in 1995, 84% were still fully or partially flexibly scheduled. This figure corresponds with the percentage of teachers who thought the practice should continue. In addition to these survey-based approaches, case study researchers were asked to make observations that would document likelihood of institutionalization.

Institutionalization of Library Power requires that its core practices become routine. A culture is established in which teachers, students and the community believe that such practices are valuable because they provide for high quality student learning. In Library Power schools, the researchers noted the accepted belief that students must learn to use modern library resources and that collaboration, flexible scheduling, and collection development are important components in promoting this kind of education. Such beliefs and structures combine to institutionalize Library Power.

Evidence from a number of study sites suggested that the core practices have been genuinely accepted for their success in providing students with a richer variety of resources. Educators and the public in the sites have come to see value in the structures and practices of Library Power and hope that they can be institutionalized. To the extent that communities, especially through their local education funds, continue to demand that schools offer the practices and resources associated with Library Power, it will become institutionalized.

Implications for Higher Education

With its interdisciplinary base, Library Power demonstrated the importance of a common vision within a school community and beyond. It demonstrated the importance of articulating the vision by many, not just the library media specialist. Library Power demonstrated the importance of collaborations in promoting excellence in teaching and learning. It also provided evidence of the important role that the library media specialist can play as a curriculum partner or leader.

Library Power suggests that it is important that the notion of a learning community be fostered, not only in K-12 environments, but in higher education, as well. It suggests the importance of collaborations between Schools of Library and Information Studies programs and Schools of Education. It suggests that future teachers, library media specialists, and administrators (as well as educators in continuing education programs) would benefit from opportunities to work together in learning communities. These would include, but not be limited to, shared courses, shared course assignments, and field experiences involving both practicing library media specialists and cooperating classroom teachers.

The realization that, given the right conditions, the leadership of school library media specialists and school library media programs can make a difference in opportunities for

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student learning, is important. As a vital part of the learning community, school library media programs have much to offer in achieving the goal of excellence in teaching and learning.

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Part 3:

Powerful Roles

Authentic Learning and the Research Processes of Gifted Students

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This study utilizes qualitative research methods (observations, interviews, and analysis of written documents) to investigate the research processes of ten gifted students who participated in independent research projects. Research stages dealing with exploring and forming a focus presented the most difficulty for the students. The three students who were able to establish a clear focus were the only ones who demonstrated all aspects of authentic learning. An additional research question deals with the types of resources used by the students. Books and videocassettes were the primary sources used by the students. All students were highly dependent on the teacher as a source of information. The researcher points out the absence of collaboration between the teacher, the school librarian, and the public librarian. The researcher also calls for the examination of cooperative learning, intervention, required assignment deadlines, and the format of products as each of these relate to independent research projects.

Introduction

Teachers frequently give gifted the opportunity to participate in independent research projects, reasoning that such assignments allow the students to explore their own interests, produce creative products, and engage in meaningful learning experiences. But how important is understanding the research process itself and being able to access and utilize a variety of sources to such an assignment? Are the independent research projects fulfilling the intended goals for all gifted students? How might the process be altered to make such an assignment produce more authentic learning experiences for each gifted student? This case study of ten ninth grade students in a junior high class for gifted students investigates these questions.[1]

This study extends and applies the information obtained from previous studies that have dealt with (a) the research processes of young people, (b) the types of information sources used by gifted students, and (c) the application of authentic assessment standards to learning.

Previous studies related to these topics include a research model developed and tested by Kuhlthau (1985, 1988, 1989, 1990, 1993), a study by Burdick (1996, 1997) that used Kuhlthau's model and emphasized the focus formulation stage of the model, studies by McGregor (1994) and Pitts (1994, 1995) that provided insights into the research processes of young people, and Reis and Renzulli's (1992) research describing a twelve-step methodology that teachers or media specialists can use to guide high ability students in independent research projects.

Latrobe and Havener (1997) explored the types of information consulted by high school honor students, and Newmann, Secada, and Wehlage (1995) wrote a monograph in which they defined authentic learning by using three criteria: construction of knowledge, disciplined inquiry, and value beyond school.

Research Questions

A case study using qualitative research methods was selected as the most appropriate means of obtaining data to investigate the following research questions that served as guides to the study: (1) What are the processes, thoughts, and feelings that gifted students experience while participating in an independent research project? (2) From what sources do gifted students obtain their information for an independent research project? (3) Do independent research projects produce authentic learning for gifted students?

Methodology

Purposive sampling was used to select a school district where there was a well-established gifted program for students. The selected classroom was in a junior high school in a southeastern state. At the request of the school district, the school remains anonymous in the study and fictitious names have been used for the teacher and the students. The teacher had several years of experience as a teacher of gifted students. The school was located in a primarily middle class neighborhood, with a variety of racial backgrounds represented in the student body. The ninth grade classroom chosen for the study consisted of ten students—six girls and four boys, nine Caucasians and one African-American. All the students were formally identified as gifted using a combination of criteria that included formal testing. The students were in the gifted classroom during one period of the day.

During the three days prior to the beginning of the independent research project the researcher observed the students while they participated in panel discussions relating to a NASA project in which they had been involved. Most of the students were friendly and outgoing. They chatted informally with the researcher, and none of the students seemed uncomfortable with the presence of the researcher in the classroom. Thus, the researcher assumed the role of "participant observer," the term used to describe the researcher who enters the world of the people he or she plans to study (Bogdan & Biklen, 1982).

The researcher spent twelve weeks during the spring semester gathering data related to the students' independent research projects. Data gathering methods included the following: (1) observations, during which field notes were recorded; (2) informal interviews with the students, the teacher, a public librarian, and the school librarian; and (3) analysis of documents including papers distributed by the teacher, information sources gathered by the students, and the final student research products. Qualitative researchers recommend the use of multiple data sources and research techniques (Pyke & Agnew, 1991). This method of "triangulating" data sources minimizes bias and maximizes the amount and quality of data gathered (Westbrook, 1989).

Field notes from observations and interviews, as well as notes taken from the analysis of documents, were coded and analyzed. The researcher looked for patterns and trends that provided the findings for the study.

Results/Findings

The Research Process

Receiving the Assignment. Before beginning the independent research project the instructor, Mr. Roberts, spent one class period discussing the assignment. He provided the students with handouts and talked to them about note-taking. There were no specific deadlines for the independent research project, but he did mention that the class would spend about nine weeks on it.

Selecting a Topic. Students were allowed to select their own topics for independent research. Before walking with the students to a nearby public library Mr. Roberts discussed project ideas with the students. Two of the nine students, Mary Ann and Scott, had fairly definite ideas of the topics they planned to research. One of the students had many ideas, four had a few ideas, and three had no ideas. The amount of time for topic selection varied greatly, from the first day the students discussed topics to twelve days later. Elaine waited until the twelfth day and selected a topic (Janis Joplin) only after Mr. Roberts checked out some books from the public library and placed them in her research carrel. Elaine did state, however, that she was glad to finally have a topic. This was the first sign of enthusiasm or optimism expressed by her since the beginning of the assignment. Elaine's response coincided with Kuhlthau's model in which students have feelings of optimism when a topic is selected. All the students expressed a sense of optimism as they selected their topics, although again there was great variation in their level of optimism.

Exploring for a Focus. Kuhlthau's third stage in the research model is exploring for a focus. In her model feelings of confusion, frustration, and doubt accompany this stage. Kuhlthau reports that half of the students in her studies was successful obtaining a clear focus for their research, while the other half of the students was not. Burdick's (1997) findings were similar, but in her study she went on to delineate three types of students in regard to the focus of their projects: Navigators (students who were highly focused), Tourists (students who narrowed their topics somewhat), and the Lost and Wanderers (students who were only able to express a vague description of their topics).

The researcher classified four of the students—Michael, Lara, J.C., and Elaine—as Lost and Wanderers. Although they did collect some materials and go on to make presentations, they never seemed to have a clear focus. When questioned by the researcher at various times about their projects, they were unable to verbalize what questions they had about their topics or what they were trying to discover.

The researcher placed three of the students in the Tourist category: Linda and Jana (who worked collaboratively on the topic of magic) and Steven (who investigated nonverbal expression using a clay model). They somewhat narrowed their topics and explored them by collecting information.

Three students, Jennifer, Scott, and Mary Ann, achieved the attributes of Burdick's Navigators. Each of these students formulated a clear focus, and each followed the cognitive and affective stages of Kuhlthau's model. As mentioned earlier, Scott (robotics) and Mary Ann (polymer science) selected their topics almost immediately. Mary Ann was unable to find the sources she needed, but clearly focused on the topic of bubbles when she switched topics. Scott, although using a fairly small number of information sources in the collection stage, kept a clear focus throughout his research. Jennifer, who investigated autism, was perhaps the most "classic case" of Kuhlthau's entire research process in this study.

Forming a Focus. Jennifer provided an interesting case study during this fourth stage, which Kuhlthau calls "forming a focus," and the following stage, "collecting information." After trying to suggest the topic of autism to Elaine, she decided to explore it herself. Up to that point she had been thinking in the broader areas of sign language or child prodigies. She told the researcher she was trying to figure out a way of tying sign language to autism. She became clearly focused on the topic and had a number of questions she wanted to investigate.

Collecting Information. Jennifer stayed focused on her topic during the remainder of the research process. She immediately began gathering sources from a variety of places. She contacted people who knew about autism, checked out books and videos from the public library (and put others on reserve), and borrowed videos from video rental stores in town. She clearly displayed a sense of direction and much confidence throughout this stage.

Preparing to Present. In this stage Kuhlthau describes the students as feeling either a sense of satisfaction or dissatisfaction. The feelings of satisfaction were apparent in the students who were focused (the Navigators) during the research process. Mary Ann, Jennifer, and Scott were all excited about their presentations and talked with the researcher about what they planned to do. All of their presentations were well organized and displayed much creativity.

The other students lagged noticeably behind in their preparations to present. Jana, Linda, and Stephen (the Tourists) presented during the eleventh week of research. Their presentations exhibited information they had obtained but lacked the organization and focus of the three previous presentations.

Elaine (categorized as a Lost or Wanderer) was the next to present. As mentioned earlier, Elaine showed little interest in the research process, and she received much assistance in her preparations for her presentation. When she decided to make a video for a product ("because Mr. Roberts suggested it and Steven is making a video so I guess I will"), she was very dependent on Mr. Roberts and Jennifer to help her complete her video. However, once she got into her topic presentation and began to relax, she surprised Mr. Roberts, the researcher, and the other students with the amount of information she had gathered and how much she had learned about Janis Joplin's life.

Assessing the Product and Process. Although Kuhlthau's original model did not include a stage for assessing the process, she did include it as one of her stages in her book, *Teaching the Library Research Process* (1994). This step is important enough to merit inclusion in the current study.

Mr. Roberts continually stressed self-assessment throughout the research process. Early in the research process he talked about evaluation: "How the product performs is your evaluation. Does it support your hypothesis? It doesn't mean if the hypothesis doesn't prove out, you haven't learned."

During the sixth week he called the students together and had them fill out a form, "Almost There: Putting the Finish on an Independent Study Project," that both assessed their progress and guided them to look at the things they needed to accomplish before their presentation. The students then shared their responses orally. Mr. Roberts and the other students offered suggestions for each project. When all the students' presentations were completed, Mr. Roberts and the students evaluated both the research process and their own products.

Mr. Roberts also orally shared with the students his assessment of how he had structured the independent research project: "I think it would have been helpful if I had set some deadlines. Maybe we should have sat down as a class and agreed on some deadlines." He also thought he should have required the students to do more writing, even though the final product was an oral presentation: the writing would have supported the oral presentation. Jennifer's product was the only one in the class that included an accompanying written paper.

Mr. Roberts talked to the researcher after class on one occasion and noted the independent research projects had decreased in quality through the years. He wondered if it had something to do with reading as he said many of his gifted students did not seem to be readers. The projects in the earlier years were set up on a more formal basis, with research questions stated and "discoveries" presented in well-organized, written papers.

Sources of Information

The second research question for the current study concerns the sources of information used by the students for their independent research projects. The most extensively used sources of information for all the students were books. Most of the students obtained their books from the nearby public library; however, several of the students also brought books from home.

All students appeared to know how to access the online catalog in the public library. One of the students told the researcher that Mr. Roberts had taken the students to the library when it first opened and showed them how to search the catalog. However, similar to the students in Pitts' (1995) study, if these students did not find a source in the catalog they assumed the library had no information on the topic. Although other electronic sources, such as magazine indexes, were available on CD-ROM in the public and school library, the researcher observed only one instance of their use—Jana ran a printout of Houdini from an electronic encyclopedia at the public library. Some students read magazine articles about their topics, but these were primarily provided by Mr. Roberts, who seemed to have large amounts of information in his school files (although much of the information was quite old). On several occasions Mr. Roberts retrieved articles and presented them to the students.

The second most used sources of information were videos. They came from a variety of places—the public library, home, video rental stores, Mr. Roberts' collection, and in one case the school library. The students particularly enjoyed watching the videos and frequently spent entire class periods viewing them. The unfocused students, particularly Lara and J.C., spent time viewing other students' videos instead of working on their own projects. Most students took no notes during the videos.

Two students used audiocassettes were used to obtain information. Lara used a cassette of an Irish folktale, and Elaine used a Janis Joplin cassette. In neither case did the student locate the audiocassette on her own.

In Latrobe and Havener's (1997) study of information-seeking behavior, the ninth grade honor students relied heavily on other people for information, and 100% of those students reported consulting with their teachers. This was also true in the current study where every student in the class relied on Mr. Roberts to provide them with information on their topics. He was remarkably well-rounded in his interests and was able to verbally contribute in-depth information on every student's topic. Additionally, he provided several of the students with materials on their topics or for creation of their products.

Jennifer was the only student who obviously consulted with other adults besides Mr. Roberts for her information needs. Some other students, however, did mention their parents helped them obtain materials for products that they built.

Both the students and Mr. Roberts consulted the librarians at the public library and the school library only for the location of materials. The researcher informally interviewed the reference librarian on duty at the public library and the school media specialist. Both were knowledgeable professionals who were well acquainted with a variety of information sources, possessed the ability to conduct reference interviews, and knew how to integrate information skills into the research process. Both were pleasant individuals who were willing to help the students. However, neither librarian was asked to assist the students in any way except to locate a book on the shelf, put a book on reserve, or provide a blank videotape.

Neither the school library nor the public library had Internet access at the time of the study. Thus the students did not access Internet resources except Jennifer who reported using e-mail on her home computer to obtain some information from individuals about autism.

The use of the school library seemed to be an omission in the research process. When questioned about the school library, Lara responded, "I don't check out books from the school library. Mr. Roberts takes us, but not for research projects. Maybe for something else. He usually brings us here (public library)."

J.C. noted that the public library had more materials than the school, but the university library had the most. He explained he had access to the university library since his mother worked there but many of the students in the class could not check out books from the university library.

When Mr. Roberts was asked about the resources in the school library, he responded that the school library was limited for the depth of research that the gifted students conducted.

The researcher found the school library to be a busy place, with an average number of books for the size of the school. Most of the gifted students in Mr. Roberts' class could have found at least some materials on their topic, except perhaps for Mary Ann's first topic of polymer science. The school librarian stated she did provide resources for Mr. Roberts and his students if they came in during their independent research projects. "If I know his students are working on a certain unit, then I'll direct him (Mr. Roberts) and I'll gather resources for him," she explained. Then she added, "He pretty much follows his own curriculum."

Authentic Learning

Three students (Mary Ann, Jennifer, and Scott) demonstrated authentic learning. All built their research on a prior knowledge base, gained in-depth understandings of their topics, and communicated their learning through complex narratives, rather than simple, brief responses. When asked questions at the end of their presentations, they were able to give involved explanations and all three students talked of additional questions or understandings they had formulated in the research process. They were able to communicate how their research could help them beyond the value of getting a grade for the class. "From reading and building a robot, I got great knowledge of robotics and electronics which can help me with lots of things, like fixing a car," explained Scott.

Aspects of authentic learning, particularly construction of knowledge and the use of a prior knowledge base, could be found in the seven other projects, but none of these projects demonstrated *all* the aspects of authentic learning as described by Newmann, Secada, and Wehlage (1995). The aspects of authentic learning that were most often absent from the other seven projects were in-depth understanding and the expression of conclusions in complex communication. Most of the seven presentations demonstrated rather simple explanations of what they had learned.

Because Mr. Roberts had directed the students to assess their process and products, all of the students made comments about their research. Some comments were quite insightful and "on target," such as Scott's indication that he thought he should have done more book research, and less hands-on. Steven said, "I wasted two weeks of time. I know I was just bouncing around the room for the first couple weeks." After her presentation, Elaine was more willing to share her thoughts with the researcher, noting, "I guess my presentation went OK—I guess. I guess it could have been better. I could have worked harder. I'm lazy. I admit it." She went on to explain that she had difficulty making decisions and concentrating.

Conclusions and Implications

Students in the current study experienced the most difficulty with the focus stages (exploring for a focus and forming a focus) of the research process. Kuhlthau (1985, 1988, 1989, 1990, 1993) and Burdick (1996, 1997) also indicated similar problems and numbers of students having difficulties in the focus stages. Thus, the fact that a student is gifted does not mean he or she will have less difficulty in obtaining a clear focus in an independent research project.

Obviously the focus stages are crucial in the success of the research process. Studies that concentrate on these particular stages of the research process would help educators to better understand how to help students explore and narrow a focus. In the current study the teacher had the students fill out forms to help them establish a focus for their projects. However, there was little or no follow-up with the forms. One-on-one interviews with the students at that point, dealing with both the cognitive and affective aspects of the process, might have helped the students form a clear focus or help them understand why they were experiencing difficulties. A teacher might also consider not having a student move on to the next stage (collecting information) until the student verbalizes the research questions and obtains a clear focus.

Intervention made a significant impact on the research process in this study. Although the teacher in the current study frequently intervened positively with the students, he did not utilize other adults to assist in the intervention process. School library media specialists, in particular, are trained in the teaching of the research process, the integration of information skills into the research process, and the utilization of information resources. It is important that the teachers of gifted students work collaboratively with the school library media specialists, thus using the expertise and knowledge of these professionals and providing another adult who could make positive interventions. Phone calls made to the parents of the students soliciting their help might also be an additional means of increasing positive intervention in the independent research projects.

The impact of collaboration among students on independent research projects also needs further study. Questions of when, how, and with whom student collaboration positively affects the research process should be investigated. The current study revealed both positive and negative instances of student collaboration. Although educators have joined the rush to get on the "student collaboration bandwagon," this study indicates there is a need to stop, observe, and reflect on examples of student collaboration or cooperative learning. It is important to determine how collaboration best functions so it can be used effectively in the education of gifted students.

Another aspect of educational reform needs some reflection as well. Educators have emphasized producing creative products in research projects, particularly with gifted students. In this study there was little writing produced in those products. It is possible that those students who struggled to find a focus for their projects might have benefited by organizing their thoughts and information in some written form. Teachers of the gifted and school library media specialists need to consider the importance of the written word in research, particularly as they prepare college-bound students who will be asked to produce formal research papers. There should be an appropriate balance in the formats of the student research products.

The teacher in the current study did not want to place pressure on the gifted students by setting up deadlines for selecting topics or moving into the various stages of the research process. Yet, the students who completed the projects first were those who obtained a clear focus in their research and presented the most creative and complete products. Thus, this lack of deadlines to relieve pressure from the research process is an educational opinion that needs careful consideration.

Similar to the females in Burdick's (1996, 1997) study (who were not limited to gifted students), four of the six girls in this study exhibited some lack of self-confidence in the independent research process. Even though some boys had similar problems in selecting a topic, finding a focus, or producing an effective presentation, none of them verbalized any lack of confidence. Most said they were satisfied with their efforts. This lack of self-confidence among the females is a characteristic of the research process that needs further investigation and solutions.

The most disappointing finding in the current study was that authentic learning was not displayed in all the gifted students' research projects. The three students who were able to find a clear focus and follow through all of Kuhlthau's stages were those who displayed all the criteria of authentic learning. Thus, this study indicates gifted students need to successfully follow through research stages in order to achieve authentic, relevant learning. It cannot be assumed all gifted students will have meaningful learning experiences in an independent research project. It is important that educators reach these underachieving gifted students. These students will continue to need to utilize information for research. As they progress through high school and into college or university, learning how to access and utilize information for research and to successfully move through the research process will significantly improve the chances of obtaining meaningful learning experiences for all gifted students. How best to instruct and guide the students in an independent research project is a serious challenge for all teachers of the gifted and for all school library media specialists.

Notes

[1] An article based on this study will appear in the Winter 2000 issue of *Gifted Child Quarterly*.

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Treasure Hunt or Torture

Student's perspectives on research projects.

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Two naturalistic research studies observed forty-five eleventh grade students carrying out research paper assignments and a third such study focussed 26 third grade students. The studies took place in Alberta (Canada) in 1993; Texas (USA) in 1996; and in Washington state (USA) in 1999. From data analyzed in the interviews and written documents, the initial findings indicate that third grade and eleventh grade students feel and think about research writing activities similarly. The younger students seemed more process oriented than the older ones. The third grade students commented on enjoying reading the information on their topic and telling the facts they had learned. The older students used methods of citation and more sophisticated paraphrasing techniques. The younger students did not use any citations. The amount of blatant copying for the Texas study and the Washington study were comparable. The mental models of both age groups were surprisingly similar.

Introduction

Near the end of a school year, students were asked, "What was the best thing about your experience?"

One student sighed with relief as he replied, "It's over. I'm done. I won't have to do **that** again." Was the experience to walk the plank? To read the entire encyclopedia set? To calculate pi? What could be so awful that it was a relief to have finished the experience?

Another student cheerfully replied, "All the stuff I learned." Was this her summary of an outstanding school year? Was the experience the result of a masterfully taught lesson? Had she read a great nonfiction book? What experience resulted in so much learning?

This question was asked of students who had handed in their research reports. These responses are typical of students assigned research papers, reports, or projects. Students feel that research assignments can be both a treasure hunt and pure torture.

Research papers have become an integral part of today's curriculum for students of all ages in North America. With the push toward developmentally appropriate curriculum, primary students in kindergarten through third grade have been considered too young to be required to manage such a monumental task (Bredekamp, 1987). Yet, the push toward academic accountability and changes toward resource-based learning requires younger and younger students to be engaged in library research. School librarians/library media specialists all over the world are asked about resources with low reading levels. "Do you have a fact filled book on rain forests with a first grade reading level?" Some teachers feel that teaching young children research skills gives them more time to perfect the skills before high school and college where the research paper is a mainstay. Other teachers feel that exposure to research projects at an early age is a great way to involve parents.

Research Questions

What do young children learn from research assignments? Do students construct their own understanding of content matter during a research assignment? Do students at different cognitive stages think about research differently? What thinking skills do students use during each phase of a research project? What are the mental models of third grade students? Does plagiarism occur when there is primarily a product orientation rather than a combination of product/process orientation? Are younger students more process oriented?

Theoretical Background

Piaget first observed and investigated children building their own knowledge of the world in the 1920s. His constructivist theory can best be summarized by this statement, "...knowledge of reality must be discovered and constructed by the activity of the child" (Ginsburg & Opper, 1969, 14.) Several researchers in the field have used constructivist theory to provide a framework for their work. Kuhlthau (1993) investigated children's physical and mental activity during information use. This research focused on the student's ability to construct understanding rather than simply acquire knowledge. Tastad and Collins (1997) used constructivist theory in their research with information use and the writing process. A constructivist philosophy was found to be more productive and even necessary to teach the process of using information and writing.

The mental model is a psychological and scientific concept employed to understand the human thought process (Gentner & Stevens, 1983). Johnson-Laird (1983) defined mental models, "...human beings understand the world by constructing working models of it in their minds" (p. 10). Students of all ages construct mental models of concepts and processes throughout their educational experience. Several researchers in the field of library and information studies have explored mental models. The mental models of administrators, teachers, school library media specialists, and student's of all ages have been the focus of many recent studies (Mevorach & Strauss, 1995; Moore, 1998; Pitts, 1995; Tallman & Henderson, 1999).

Methodology

Two independent researchers have spent several years collaborating on a series of qualitative studies of a phenomenon from several perspectives in order to provide a broader scope of the problem. The phenomenon observed was that of students using information during a research writing assignment in a naturalistic setting. The populations were purposefully selected to enhance the likelihood of rich data. There was no control of any of the situations involved in the studies. The library media specialists at each site served as the gatekeepers for the research studies. The studies took place in Alberta (Canada) in 1993 (McGregor, 1994), Texas (USA) in 1996 (McGregor & Streitenberger, 1998), and in Washington state (USA) in 1999.

Previously, two naturalistic research studies observed forty-five eleventh grade students carrying out research paper assignments. One study explored student information use in general and probed the possibilities of the link between product orientation and plagiarism. This 1996 study in Texas grew out of a 1993 study in Alberta, Canada which generated a model of student thinking.

The selected samples provided the researchers with an opportunity to observe eleventh grade students writing research papers as part of their normal educational experience. The sites were chosen to provide as much similarity as possible, but the populations were different in several ways. The Canadian students were International Baccalaureate (IB) students whereas the American students comprised a more heterogeneous group. The Alberta sample was on the assumption that IB students might be able to describe their thinking most easily. The more heterogeneous Texas sample was selected to allow observation of a wider range of behaviors.

The Alberta study observed and interviewed students during the information collection phase of their research projects, and analyzed audio taped think-aloud protocols of their paper-writing phase. The Texas study observed and interviewed students throughout the information collection and writing phases. Data in both cases (research logs, notes, and final drafts of the research papers) were collected and analyzed, and sources of information were examined.

As a result of these two studies, a third exploration of this naturalistic research began in January 1999 with 26 third grade students. In a rural area outside of Seattle, Washington, USA. The single researcher's role was that of observer. The purpose of this study was to explore the role of cognitive development in mental models and information use.

As were the previous subjects, the students who were the subjects in this study were purposefully selected for their ability to verbalize their thinking. An interview of the subjects was followed by observation in the classroom as they entered the information collection and writing phase of the research project. Data collected included transcripts of interviews, field notes, student notes taken, webs, rough drafts, and final copies. All written documents were analyzed and written sources were examined.

The analysis of data in all three studies included the comparison of the students' final papers with the original sources of information. Due to teacher intervention in the form of emphasis on proper citation, the Texas group was very conscious of avoiding plagiarism and the need to cite appropriately. The Alberta group received little direction with respect to citation or plagiarism. The Washington group received no instruction on citation. The Texas students used a citation pattern nonexistent in the Alberta group's papers; they included many passages that were taken directly from the sources, parenthetically referenced, but not enclosed in quotation marks.

The Washington group presented an interesting situation. This group of younger children wrote reports about African animals. The information in the source was written very simply, for example, "Hippo skin is thick and tough." (Banks, 1990, p. 17). Third grade students possess limited writing skills to paraphrase that sentence. During analysis it became apparent that the students had either copied information word for word with no quotations or they attempted to paraphrase. For example, the information from the source above in the final paper read, "The Hippopotamus has thick tough skin." This attempt was considered copying because the original sentence pattern was not rewritten. Attempts at paraphrasing were considered copying due to the lack of evidence that the student understood the information.

The Texas students did not demonstrate the connection between paraphrasing and citing ideas in most of their papers. Citation errors in these passages suggested that students were simply scribing, trying to fulfill a requirement, and not thinking about the topic or about synthesizing information. Interventions based on format and rules seem to have some effect on limiting the amount of blatant copying but not on helping students learn from information or construct their own understanding.

Further data analysis in both the Alberta and Texas studies consisted of coding transcripts of the formal interviews. The coded transcripts were then scrutinized for patterns of mental models, process/product orientation, and information use. The results of the Alberta study led to a model of student thinking, which is currently being refined with the results of the Texas study.

Findings

In the Washington study, the initial analysis of interview transcripts and documents reveals interesting patterns of young children's thinking. The patterns emerging from the preliminary data analysis include: limited previous understanding of the topic, evidence of the mental models of novice learners, and process orientation. Further analysis will provide deeper understanding.

Children with vast amounts of differing experiences utilize concrete thought processes to make sense and store information (Ginsburg & Opper, 1969). Using a metaphor borrowed from Pitts (1995), third grade students do not have much of anything stored in their cognitive attics. At the ripe old age of nine most students have had limited life experiences. Certainly, in the population of this study the experience with African animals consisted of photographs, documentaries seen on television, and possibly a visit to the zoo. A majority of the students therefore had no concrete experience with the animal they were writing about. Some students had first hand experience with pets or farm animals. Misunderstanding is likely to be possible when new information is acquired and used based upon the knowledge of a topic gained by looking at a photograph.

Their lack of life experiences and prior knowledge is evident in the reports written by third grade students. One student who obviously had limited experience with pregnancy, except the underlying truth that it takes a long time to have a baby, lacked the prior knowledge to correctly report the gestation period of elephants. She wrote, "Elephant babies are in their mothers stomach for 4 whole years." The source text stated that elephant cows were pregnant for 21 months (Overbeck, 1981). One would think that applying some mathematical calculation would have adjusted the student's thinking. However, division is typically only an introductory concept in third grade. The student did not have enough prior knowledge to accurately paraphrase the source and build new understanding.

Unorganized and fragmented understanding are characteristics of novice learners (Pitts, 1995, 178). Mental models constructed on a novice knowledge base have accurate and inaccurate personal understandings. An analysis of the research reports on African animals reveals that some third grade students had an unorganized and fragmented understanding. Paragraphs were written with facts on different aspects of the animal chained together: "Monkey's usaly eat fruit, leaves, seeds, buds, bark, and stems. Mostly Monkeys eat fruit. Some monkeys live on ground like baboons and chimps. Most live in trees. Some Old World monkeys have flat noses." The student listed many types of plant material that monkeys eat, yet the understanding of the student was that monkeys mostly eat fruit. This personal understanding was probably based on the media created notion that monkeys eat bananas and there were oranges in the cage at the zoo when the student visited. The student's understanding is shown to be clearly fragmented particularly when referring to the original source information that was found on pages 22, 10, 11 (Barrett, 1988). The information was presented in an organized format and the notes written from the source followed the organization for the most part. The student created a web from the notes which grouped all of the facts relating to food were around it. In writing the report, the student presented the facts in an unorganized and fragmented manner. This student has a mental model of monkeys that continues to lie on the novice end of the continuum (Pitts, 1995, 178).

The mental model of an expert has complex and organized understandings of the topic (Pitts, 1995, 178). Students were asked if they considered themselves experts after spending two weeks gathering, organizing, and reporting information on the topic. Most students said no, they wouldn't consider themselves experts because they didn't understand the animal well enough. After a few probing questions, the students revealed that they might know more than their peers and certainly they knew more about the animal than before reading the sources.

Process orientation is reflects the students' enjoyment and focus on the information, the learning, and the task of doing research rather than on the finished product or the final grade. The third grade students in this study enjoyed reading for information about the animals, working in groups during the note taking phase, and using computers at home. A majority of the students said they liked reading all the books, magazines, and computer print outs about the animals. The task that they liked the least was editing the rough draft and making the final copy. Clearly students enjoyed the research process much more than creating the product.

Another example of process orientation was the lack of concern or awareness that the report would be graded. The researcher had to ask students and the teacher if the reports were graded. The teacher replied, "Oh, yes!" A question was then put to the students, "If you could give yourself a grade on this report, what grade would you give yourself?" Several students did not know. They could not fathom giving a grade or earning a grade. A majority of students gave themselves the equivalent of a B. They felt they had written a good report but that it would have been better if the conventions (spelling, capitals, and punctuation) were better or there was more information in the report. Overall, there was a general disinterest in grades or the finished product. Most students were focused on the research process of reading for information.

The most significant evidence of process orientation is the lack of blatant copying by third grade students. A comparison of the written reports to the original source material revealed very little plagiarism. More than half of the papers had less than 15% of the written material copied. A majority of the papers were 100% "kid language, " i.e., completely in the students' own words. Third grade students showed they had used the information and made sense of it constructing their own understanding of African animals.

Some of the similarities and differences noted in the thinking of students in the Washington study became evident when compared to students in the Texas study. Third grade student's mental models were compared to eleventh grade student's mental models using responses to interview questions. Another comparison of both groups written papers showed some initial differences. The amount of plagiarism committed by both groups in the form of copying was compared only quantitatively. Further qualitative analysis will reveal more similarities and differences.

Responses to interview questions allowed comparisons between the third grade students'mental models and the eleventh grade students' mental models. Another comparison of both groups written papers showed some initial differences. There was only quantitative comparisons of the amount of plagiarism committed by both groups in the form of copying. Further qualitative analysis will reveal more similarities than differences.

The researchers also used transcripts of interview questions to compare the mental models of third grade students and eleventh grade students. Both the Texas group and the Washington group were asked, "What is research?" and "What is a research paper?" These open-ended questions were designed to allow the student's thinking to emerge. The questions were asked either before or at the very beginning of the research study.

One third grader described research as follows: "Like if you need to do a report on something you got to research in books and stuff. Like if you had to research on like, boats and stuff you could get, like a Titanic book and look how it did everything and write down how it did stuff." An eleventh grade student's mental model of research was similar: "...looking up, finding out information about the past, or something that has been going on. And, um, finding out as much as you can about it, and putting it in to a way that people can read it and understand it. And know about it." Both students described research as a process involving information collected from sources and then writing down the information for a purpose.

The mental model of research papers from both groups seems to emphasize the written product. A third grade student explained that research is " something that you study and do a report on." Similarly, an eleventh grader mused that a research paper was: "... kinda hard to explain. Like, all the information on paper, you just put it into a format, so it's a really easy paper." Both age groups' mental models include using information in the writing process. Even though the older student emphasized the format and structure of the paper the basic definition is parallel.

Some differences were not age specific but were due to teacher interventions. During the Texas study, teachers told the students to take notes on note cards by copying directly from the source. In the Washington study, the teacher modeled note taking on a piece of paper paraphrasing the source text with a different fact on each line. It was evident that the students who took notes from source material by paraphrasing were less likely to copy than students who copied the source text verbatim.

During analysis of the note taking pages it was often difficult for the researcher to determine which source had been used. The sequence of information usually determined the source. A third grader took the following notes about camels: "lazy, mean, stuiped; spits; tamed in 2,600 B.C.; mite be exstenct; fewer then 1,000; sharp theeth; strong lips; can eat thorns." The only information from this section of notes that was included in the final draft was the fact that camels eat thorns. The final report read, "The camel can eat many things like thorns, cactus, grass, and anything it can get to." The paraphrasing, including the misspelled words, indicate the student's making sense of the information. If the student were merely scribing, that is, copying straight from the book on to the paper without any thought process, the words would more than likely have been spelled correctly.

Conclusions and Implications

From data analyzed in the interviews and written documents, the initial findings indicate that third grade and eleventh grade students feel and think about research writing activities similarly. Teachers led students through an educational process that produced a piece of writing. The piece of writing should contain a synthesis of the information learned during the educational process. Curiously, the initial research experience for the group of third grade students was not much different from the experience of eleventh grade students. For some of the eleventh grade students their experience was their initial research paper. Something is definitely lacking in educational experiences if students begin and end them without significant growth. Teachers, researchers, and library media specialists should be mortified that between third and eleventh grade students do not gain sophistication in their use of information and writing.

The younger students seemed more process oriented than the older ones. Primary teachers should be commended for emphasizing the process. The third grade students commented on enjoying reading the information on their topic. The students enjoyed telling the facts they had learned about African animals.

Creative and alternate ways of reporting the information could be advantageous to students with limited writing skills. The older students used methods of citation and more sophisticated paraphrasing techniques. The younger students did not use any citations. The amount of blatant copying in the Texas study and the Washington study was comparable. Students can be taught to use citation styles and paraphrasing techniques to successfully minimize copying. The implications of this finding could ultimately bring changes to curricula at all levels. Students are capable of building an understanding of a topic and communicating the synthesized information to others.

The mental models of both age groups were surprisingly similar. Students have not progressed very far on the continuum from novice to expert in eight years of educational experience. Comparing mental models of "expert" information users to "novice" information users could be fruitful. Action research cooperatively undertaken by school library media specialists and teachers could broaden the understanding of mental models of students at different ages and stages of cognitive development. Research involving mental models, use of information, and plagiarism will continue to influence educational practice. Developing theory from qualitative studies will lead the way into the next century.

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Meeting Diverse Information Needs

Students with Disabilities

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This paper presents the results of a four-year study conducted in primary and secondary schools from all sectors in two Australian states, Victoria and New South Wales. The study investigated the impact of inclusive schooling on the provision of library and information services to students with disabilities. The methodology used in the study incorporated both survey and case study. Empirical data collected by survey concentrated particularly on the current level of service provision to students with disabilities, whilst case study investigations also looked at management factors. The focus was on the relationship between the school library staff and the special education staff, and the effect this had on school library provision and the acquisition of information skills by students with disabilities. The discussion includes the level of service provision to students with disabilities, as well as the managerial approach of teacher-librarians and their awareness of appropriate resources, teaching approaches and technology.

Introduction

Educational legislation and policy has promoted for sometime the inclusion of students with disabilities in mainstream school. Most schools have some students with disabilities and usually follow one of two models: either there is a special education team providing support to students with disabilities in the mainstream, or there is a separate unit or support classes attached to the school catering to children with one or more specific disabilities. Although there are several prescriptive texts on school library services to students with disabilities (Walling & Karrenbrock, 1993; Wesson & Keefe, 1995; Marshall, 1991), little evaluation has been carried out. The only recent piece of evaluative research appears to be the British Library funded Learning Support for Special Educational Needs (LESSEN) project (Heeks & Kinnell, 1997) which investigated the role of learning support for Year 7 pupils with learning difficulties in ten United Kingdom secondary schools and was in progress at the same time as the current study. The project identified ways in which school libraries could contribute to the education of students with special needs; these included creating a welcoming library environment; development of library policy that is linked to school policy; and knowledge by professional library staff of both students with special needs and appropriate resources for them.

Definitions

The study took as its reference the Federal disability legislation, and *disability* was used as it is defined in that legislation. The *Disability Services Act 1986* (DSA) was the first piece of disability legislation in Australia. It recommended that services such as education, transport, and accommodation for people with disabilities should be mainstreamed. The DSA covers people with intellectual, psychiatric, sensory, or physical impairments. The *Disability Discrimination Act 1992* (DDA) makes it illegal to discriminate against any person because of a disability. The DDA extends the DSA definition to include learning disability. These definitions could a very wide range of school students.

The Focus of the Research

Research questions were identified to direct data collection that would demonstrate the success or failure of school library managers to meet the legislative requirements of disability legislation. Empirical data collected by survey would concentrate on the current level of service provision to students with disabilities, whilst case study investigations would also look at management factors. Awareness of the need for an inclusive curriculum could be investigated by finding out how information skills are being taught to students with disabilities. Development of policy documents that ensure acceptable standards of school library service to students with disabilities would indicate an awareness of legislative requirements as well as good management practice in creating such documents. Additional funding of school libraries to enable the legislative requirements for service provision to be met would be a similar indicator. Public, state, and voluntary agency libraries play an important supportive role to school libraries, and the extent of this support and knowledge of such services by school librarians were important issues. Knowledge of disability legislation, and the source from which the knowledge was acquired, would indicate the level to which government had been effective in disseminating information about mandatory requirements.

Methodology

Methodological triangulation was achieved by using multiple case studies and document analysis alongside a longitudinal survey approach. Exploratory interviews were conducted in some case study schools prior to the design of the survey instrument so that data collected might assist in the questionnaire design. A second survey was administered almost two years later to measure changes in provision and knowledge and attitudes towards the research questions. Documents analyzed included federal and state legislation and policy documents, school policy documents, and professional standards that had relevance to the research questions.

The Surveys

The survey instrument was a self-administered questionnaire, which was designed to collect mainly quantitative data but also included some open questions. A sheet defining the disabilities being covered was attached to the questionnaires. The first questionnaire was sent to the principals of 1500 schools, 750 in Victoria and 750 in New South Wales (NSW). A computer generated stratified random sample ensured distribution across all school sectors and levels equivalent to the proportion of schools in each sector. An accompanying letter requested that the questionnaire be completed by the staff member responsible for managing the library or resource centre in the school.

The second survey was distributed in June 1996 to all 492 respondents to the first survey. The questionnaire was amended slightly and piloted beforehand by the same school librarians who had piloted the first questionnaire. Three questions about staff development, funding, and physical access were amended to ask if anything was different since 1994. One question was added about legislation that had the most effect on school library services to students with disabilities.

There were 492 (33%) valid responses to the first survey: 285 from Victoria and 206 from NSW. Representation across sectors from the two states compared favourably with the national statistics: there are 72% government schools, 19% Catholic schools, and 9% independent schools (Lemos, 1994); the sample was 72% Government schools, 25% Catholic schools, 3% Independent schools. The follow-up questionnaire was distributed to the 492 respondents to the first questionnaire, and achieved a response rate of 53.5% (264). School sector representation again compared well with the national average (77% Government schools, 19% Catholic schools and 3.4% independent schools).

SPSS-X was used for all quantitative data analysis of fixed response questions. This consisted mainly of frequency distributions and cross-tabulations. Where chi-square tests were used, results were regarded as statistically significant if the level of significance or probability was less than 0.1 or more than 0.5.

The Case Studies

Case study schools were selected through personal contacts and professional networks and met the following criteria: a qualified librarian or teacher-librarian managed the school library; and, teaching staff within the school administered the special education program. All educational sectors at both primary and secondary levels were represented. Fourteen case study schools were selected from a range of socio-economic areas within the metropolitan districts of Sydney and Melbourne. There was also an opportunity to visit three schools in British Columbia, Canada and two schools in Nottinghamshire, United Kingdom. Both of these education authorities had established reputations in both school library provision and special education; thus additional data were collected to offer some point of international comparison.

Each Australian school was visited several times during the four years of the study. Data triangulation was achieved by interviewing a range of people in each school: library staff (teacher-librarians, librarians, library technicians, clerical assistants), special education staff (teachers and aides), and students with disabilities. Interviews were not structured beyond the use of interview guides. This open-ended approach allowed any avenue to be explored within the interview. The literature review indicated that research into special education had rarely this had risen to 4.5%. In 1994, 4% of schools reported that there were no students with disabilities enrolled: in 1996 only one school (.4%) reported no enrollments.

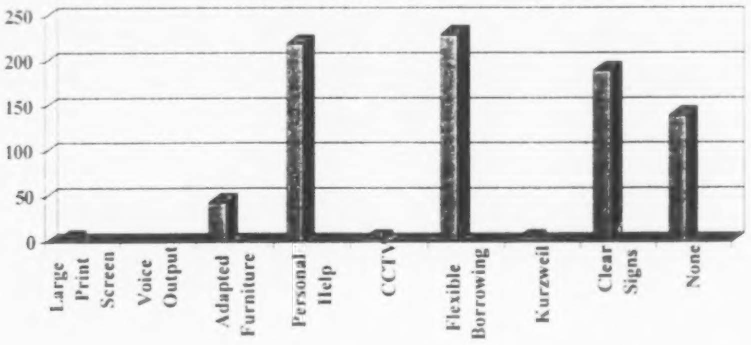
Staff development programs relevant to serving students with disabilities were available in 52% of the schools which had students with disabilities enrolled. special staff meetings, inhouse staff development activities, or talks by external experts were some of the programs mentioned by the questionnaire respondents.

Only 15 schools (3%) had allocated extra funding to purchase resources for students with disabilities. Qualitative comments indicated that in several cases the special education department had purchased material to be housed in the school library. A few respondents indicated that they had received funding for specialized resources or equipment.

The library was easily accessible for students with disabilities in 301 (61%) schools. Problems with accessibility were frequent because libraries were not on the ground floor or access involved negotiating steps. Respondents' comments also pointed out that some school library staff members were aware of less obvious barriers to physical access such as insufficient space between shelves for wheelchairs and high and low shelves that are inaccessible to wheelchair users. Thirty-six libraries (13.7%) improved physical access between 1994 and 1996.

Many of the school libraries in the study (141 or 28.7%) did not offer any special facilities for students with disabilities. Of those that did, the services most frequently provided were personal help, flexible borrowing, and clear signage. Table 2 below shows the pattern of provision.

Table 2. Provision of Special Facilities in 1994



In 1996, more libraries were providing large print screens for the catalogue, adapted height furniture, and flexible borrowing.

The questionnaire asked if libraries stocked large print books, audio books and magazines, subtitled videos, and books with high interest but low vocabulary level (generally referred to as hi/lo books). Thirty-five libraries (7%) did not stock any of these materials; 72% stocked hi/lo books; 54% had audio books; 27% had large print books; 3.7% stocked videos with subtitles; and 3.3% had audio magazines.

involved interviewing students, and this was perceived to be a future research need (Wade & Moore, 1993). Thus the present study could contribute to this gap in research to some extent.

The focus was on the relationship between the school library staff and the special education staff, and the effect this had on school library provision and the acquisition of information skills by students with disabilities. Clearly there would be a considerable range in facilities, staffing, and funding between the case study schools. Thus the decision was made to work in less depth with a number of schools, rather than intensively with one or two schools. In this way the data collected might indicate which model of special education best facilitated effective use of the school library and the teaching of information skills. The managerial and communication skills of the school librarian would be an important factor determining the level of library service provided within a school; therefore it was desirable to observe and record the skills of school librarians operating in different school environments. These requirements favoured the adoption of the constant comparative case study method that was initially developed in the work of Glaser and Strauss (1967).

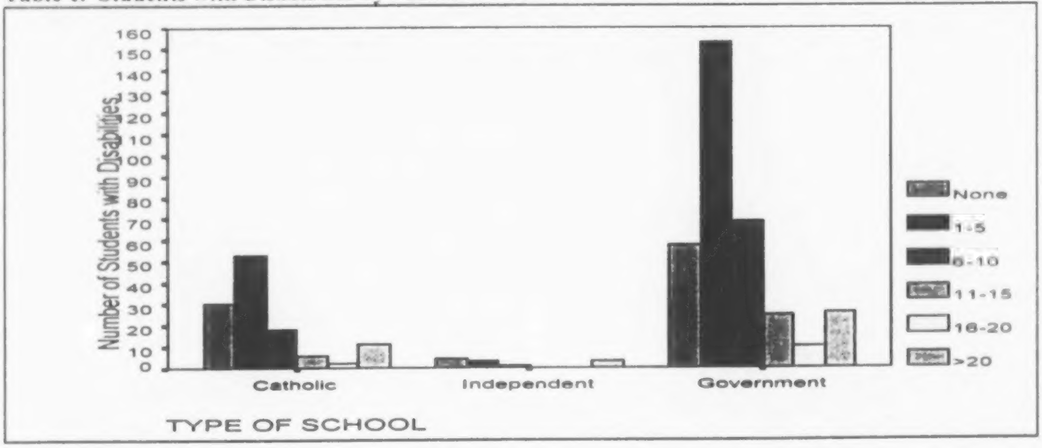
Results

The Surveys

Of the schools in the study, 92 (18%) had no students with disabilities; 209 schools (42%) had between 1-5 students with disabilities; 88 schools (18%) had 11-15 students with disabilities; and 83 schools identified 16 or more.

The results of a cross- tabulation for students with disabilities by school sector is shown in Table 1 below.

Table 1. Students with Disabilities by School Sector



The highest number of students with disabilities were enrolled in government schools, the majority of which had between one and five students. In 1996, school librarians reported higher numbers of students with disabilities, especially in the higher grade ranges. So, whereas in 1994, 6% of schools reported 11-15 students with disabilities enrolled, in 1996 it was 9%. In 1994, 2.4% of schools reported 16-20 students with disabilities enrolled; in 1996

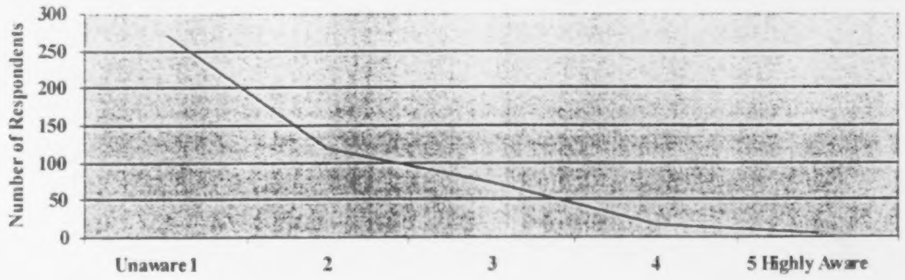
In 1996 fewer libraries reported stocking large print books and other alternative format materials. Two hundred and forty-two respondents (49%) stated that they knew where to obtain specialized or transcribed materials for students with disabilities; sources cited were local public libraries, state libraries or agency libraries.

Qualitative comments collected as part of the survey data indicated a range of approaches to the teaching of information skills to students with disabilities. Some school librarians included such students as part of the main class; others organized one-to-one instruction by either library staff, a special education teacher, or an aide, whilst other children were taught by a librarian. Other respondents indicated they used a wide range of teaching strategies in dealing with these students and were very aware of their specific needs, often modifying worksheets and other teaching materials as necessary. Some reported that there was insufficient staffing and time to cater for any extra needs.

The questionnaire asked whether the school had a formal policy on integration (this term was used as it was the terminology currently in use in both states) and also whether the school library itself had a policy statement about services to students with disabilities. In 57 schools (11%) the library manager did not know whether the school had a formal policy. In 1994 only 23 school libraries (4.7%) had a formal policy regarding services to students with disabilities, and in 1996 only eight libraries (3%) had such a policy.

Respondents were asked to indicate their awareness of disability legislation on a scale of one to five. Table 3 below shows the results.

Table 3. Awareness of Disability Legislation in 1994



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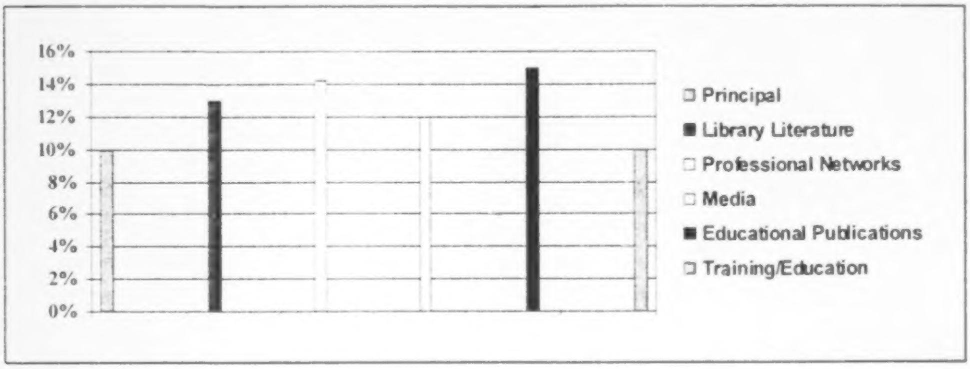
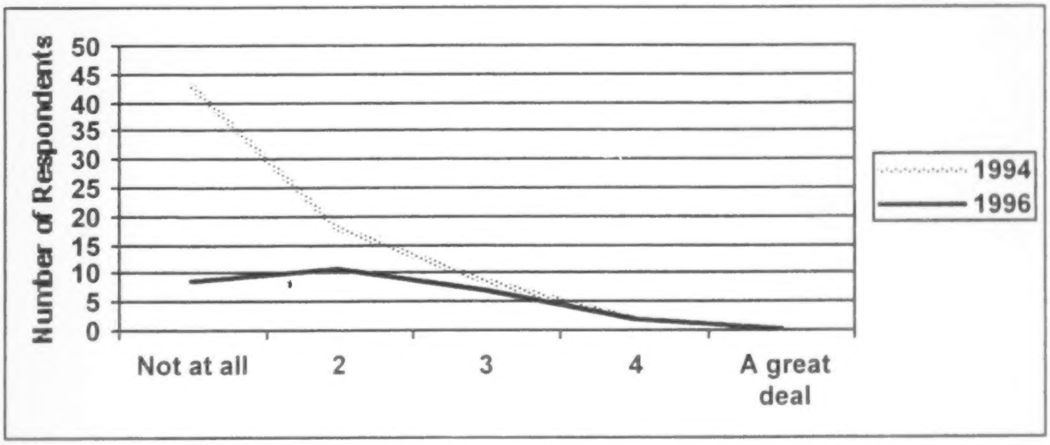
Those respondents who were aware of the legislation, were asked how they found out about it. Table 4 shows the results.

Table 4. Sources of Information about Disability Legislation



There was very even distribution across the various sources, the highest sources of information about disability legislation being professional networks (14.2%) and educational publications (15%). This same group of respondents was asked to comment on the extent to which the DDA had affected their library practice, and the results are shown in Table 5 below.

Table 5. The DDA and School Library Practice



The Case Studies

There did not seem to be any overt connection between the special education model used in the school and the overall effective use of the library by students with disabilities. In some schools with a special education support unit, there was a distancing of the students from the rest of the school population, especially when the support unit was physically remote from the main school buildings. In these schools special education teachers might be reluctant to go to the library with their students because it took up too much time. In some schools, the "ownership" of students with disabilities was an issue for special education staff: in these cases special education teachers did not give school librarians the opportunity to teach information skills to these students, or felt it was not a high priority.

Only two school libraries covered services to students with disabilities in policy documents. However, most school librarians emphasized that their services were attuned to the individual needs of every student. Awareness of disability legislation was very low; most school librarians were aware of equal opportunity legislation but not the disability legislation. They were aware that there was a legal requirement to provide services for students with disabilities, but they were not cognizant of the legal consequences of non-compliance or discrimination.

Several school library staff working in the case study schools had personal experience of disability from a variety of experiences: teaching, community work, or the involvement of family members in the disability field. This did appear to be a factor in the understanding of the needs of students with disabilities, especially if library staff had not had the opportunity to attend staff development activities related to service provision for people with disabilities. Special education staff in nearly all the case study schools did provide staff development activities of some kind for the teaching staff, but these either did not include clerical staff or were held outside of school hours and clerical staff were not willing to stay to attend on their own time.

Many school libraries still have entrance doors that are heavy and difficult to handle so that wheelchair users are forced to use entrances different from those used by other students. Some libraries provided less obvious features of good physical access such as providing an enquiry terminal at wheelchair height, and is sufficient space between shelving for wheelchairs. Unfortunately, most libraries are so restricted by space that all shelves have to be used with the result that students in wheelchairs have to rely on library staff or other students to access material for them on higher or lower shelves. Several students with physical disabilities expressed great frustration at being limited in their browsing in this way. Sometimes accessibility can be improved at little cost by rearranging shelving or providing furniture at a particular height. One school librarian noticed that when she had temporarily moved an enquiry terminal to a low table whilst upgrading the system, students in wheelchairs and also shorter students preferred using it: she now has one enquiry terminal permanently at that level.

Provision of alternative format materials in school libraries was mainly restricted to hi/lo books and book/tape kits. Captioned videos were held in the libraries of the two schools which had units for students with hearing impairment but in no others. Very few libraries stocked large print books, even when there were students with vision disabilities enrolled in the school. The only case study school that had many large print books in its collection was Nottinghamshire, United Kingdom which had 16 students with visual impairment. Initially all students at the school were allowed to borrow large print books, but due to demand, borrowing was eventually restricted to the students with visual impairment. This indicates that large print books may be a more useful resource than school librarians realize. Several school librarians found that their collection of mature age picture books were a useful resource for students with intellectual or learning disabilities. Such books were a worthwhile resource investment as they could be used in other curriculum areas such as art and design. In some schools the special education department had placed a collection of easy reading material in the library for the use of students with intellectual or learning disabilities. However, several school librarians did not favor "separate " collections as the students using them tended to be stigmatized. As an alternative, easier reading materials were interfiled with the rest of the collection, but were tagged in the catalogue so that they could be readily identified.

The involvement of special education staff in the selection of resources was not always evident. In some schools there had been no initiative by either library or special education staff. In others there was constant involvement in selection by the school librarian and the special education teacher as a team. Few special education teachers, however, considered using the school librarian as a source of advice for selection of classroom resources. Dissemination of information about resources to special education staff from the library seemed to be limited to directing appropriate publishers' fliers and catalogs, or publicizing bookseller visits to the school. Special education teachers located the resources they required through publishers' catalogues or by browsing through displays at conferences. They also consulted with specialists visiting the school or other professional colleagues. Many had identified and worked with booksellers who specialized in the type of materials they needed.

Although school librarians are experienced users of information technology, there was no evidence of the recognition of the role of technology in compensating for disabilities. Adaptive technology can provide many options such as access to print for visually impaired students and keyboard use for students with little motor control. Several school librarians had realized the benefits of electronic information sources for many students, especially those with intellectual disabilities or learning difficulties. These related to the relative ease of searching some electronic information products compared to their more traditional print counterparts.

Most of the school libraries assessed offered extra services, such as extended loan periods, and made staff available to assist students with physical disabilities in retrieving items from the shelves. Some school library staff would enlarge materials by photocopying, but often the adaptation of materials was the responsibility of the special education staff.

Very few schools cooperated closely with their local public library, except for a specific information need. One school library borrowed large print material from the local public library from time to time for a student with visual impairment. In one case study school, the school librarian exchanged for a year with a Canadian librarian. The Canadian librarian had worked very closely with the local public library in his home situation, and on arrival at the Australian school, he automatically used the public library when needed. To him, it was the obvious thing to do.

There were a variety of scenarios for teaching information skills to students with disabilities. Some students participated in library activities with their normal class; others visited the library in small groups with their special education teacher; and some visited the library on an individual basis with their aide. Students with sensory disabilities, intellectual disabilities, or learning disabilities usually needed some modifications in information skills instruction. In some cases the aide would work with the student in the library lesson, modifying material as necessary. Frequently the school librarian would adapt worksheets and other material to suit an individual student's needs, or modify the expectations for individual students. This latter option ensured the inclusion of a student with a disability, as he or she would be doing the same work as the other students, but with either modified outcomes or a different tool. The most successful situations were those where the school librarian had consulted closely with the special education teacher as to the content of information skills programs. Aides did not always accompany students to the library. In some cases this gave the opportunity for the student to exercise some independence, but in others it was detrimental to the information skills teaching process. If a student needed one-on-one attention, the librarian could not effectively assist while dealing with the class as a whole. If one of the chief roles of the aide was to keep the student on task or modify materials, it was crucial for the aide to accompany the student to the library.

Conclusion

The results of this study show that the inclusion of students with disabilities in mainstream schools is increasing. School librarians cannot ignore the needs of this client group, and they certainly need to develop a library policy that reflects the school policy on inclusion. They must also be aware disability legislation when planning library services. However, successful delivery of services is dependent on appropriate support, both practical and financial, for resources and teaching programs.

The researcher's previous experience indicated that disability awareness training was essential for library staff, especially in a school environment. The case study and survey responses indicated that current school staff development programs were not meeting the needs of library staff. Professional associations and education department training units might consider offering specific programs for library staff from a group of schools.

School libraries with limited funding are not able to purchase a vast range of alternative format materials, some of which can be expensive. School library managers need to be more assertive in ensuring that some of the funding provided to support students with disabilities is apportioned to the library. Otherwise resources have to be obtained from outside of the school on a temporary basis; often there can be a delay in obtaining such materials, and many library staff were not aware of where such resources were available.

The incidence of facilities and services available for students with disabilities in school libraries was also of concern. If these factors were considered in collection development and service planning as a matter of course, then individual libraries would be better equipped to deal with the differing needs of students with disabilities who might enrol in the school. For students with disabilities, apart from access issues, the effective use of technology can improve academic performance, classroom behaviour, motivation and self-concept. (Lewis, cited Male, 1997).

Both surveys showed that good physical access existed in a reasonable proportion of school libraries, a result to be expected as access is the primary issue addressed by most organizations in complying with the legislation. Even so, everal case study schools had libraries with significant problems regarding physical access. School librarians must be aware of legislative requirements for physical access, especially when planning new library buildings.

The qualitative data collected about information skills teaching indicated that school librarians were aware that students with disabilities had specific needs in this area, but as inclusive schooling becomes more established, teaching strategies in this area will need more attention.

The results of the study indicate that there is considerable room for improvement in the provision of school library services to students with disabilities. School library managers must have knowledge of students with disabilities in the school, provide appropriate resources for them, and develop library policy that is linked to school policy.

The case study data indicated that the following key factors are critical in effective delivery of library services to students with disabilities: well established two way communication between the library staff and the special education staff; size of the school; personal experience of disability or disability awareness training on the part of the library staff; involvement of special education staff in the selection of library resources; involvement of special education staff in the information skills program; and the support of aides where necessary. In addition, information gathered from case study schools made it clear that the culture of the school affects the amount of interaction between the school library and the special education department. Apart from this, the personalities and managerial approach of the school librarian and the head of the special education department were crucial to success. Where the school librarian was a good manager, the resulting level of service meant that students with disabilities were supported, within funding restraints. Observations and data collected from schools in the UK and Canada indicate that these issues and challenges have universal application for school librarians.

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The Impact of Whole Language on Four Elementary School Libraries

Results from a Comparative Case Study

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This paper reports the findings of a comparative case study designed to describe how the implementation of whole language, an educational philosophy influencing many of today's elementary schools, evolved in four school libraries in Virginia. The study examines the impact of whole language in terms of its effect on the library program and its effect on the librarian. The study also seeks to understand the change agent role each librarian played during implementation of the philosophy. It provides recommendations for practicing school librarians and library school educators.

Introduction

In the 1980s, the public and the educational community began to question the effectiveness of America's public schools, particularly their success in teaching students to read and write. Researchers, teacher educators, and practitioners began to seek more effective ways to teach literacy. The research generated by this national reading debate led many elementary schools to adopt a new philosophy of literacy instruction known as whole language.

The whole language philosophy emphasizes holistic, meaning-based literacy instruction. It supports teaching language and all its systems—semantics, syntax, and graphophonics—intact. Rather than being taught discrete decoding skills, children in whole language classrooms learn to read and write during the process of reading and writing. Teachers, acting as models and facilitators of literacy development, create literature rich classrooms in which children are encouraged to take risks, try new things, formulate hypotheses, self-correct, and work as a community of learners (Goodman, 1986; Smith, 1994; Routman, 1996).

Leaders in the school library field believe the implementation of whole language poses significant challenges for school librarians (Stanek, 1993; Haycock, 1988; Vandergrift, 1988b; Veatch, 1988). Haycock (1988, p. 19), describes whole language as "the greatest threat the school library profession has faced in years." He predicts that if school librarians continue to operate isolated scheduled classes and to act as unitary teachers, they risk the dissolution of the centralized school library.

Research in the area of educational change also indicates that whole language will challenge the attitudes and skills of school librarians. According to Fullan (1982, p. 26), change, especially the implementation of an innovation, "represents a serious personal and collective experience characterized by ambivalence, uncertainty, loss, and anxiety." Individuals experiencing change have concerns about their adequacy to learn new skills and use new materials. They question how an innovation will benefit students, how it will affect them personally, and how it will alter the culture and structure of the school.

The purpose of this study is to understand how school librarians in four elementary schools responded to the implementation of whole language and to describe the philosophy's impact on the library program. It extended earlier research (Barlup, 1991; Hughes, 1993; Bishop & Blazek, 1994; Jones, 1994; Delgado et al., 1995) by using three theoretical lenses to analyze the data—whole language theory and practice, educational change theory, and change agent theory.

Research Base

The research on whole language provided a deeper understanding of the philosophy and the changes it creates in the organization and climate of the classroom, the resources teachers use, teacher behaviors, and student-teacher interactions (Goodman, 1986; Routman, 1991). Theories of planned educational change revealed the complexity and multidimensional nature of educational change (Berman & McLaughlin, 1976; Herriot & Gross, 1979; House, 1979; Rosenblum & Louis, 1981; Rossman, Corbett, & Firestone, 1981; Bolman & Deal, 1984; Hall & Hord, 1987; Sarason, 1996). Empirical data indicated that implementation of an innovation involves structural, political, psychological, cultural, environmental, and technological changes. Last, research on the role of change agents emphasized the important role change agents play in the successful initiation, implementation, and continuation of educational change, and described characteristics of successful change agents (Grossman, 1975; Shirk, 1978; Feehan, 1991; Fullan & Stiegelbauer, 1991).

Research Questions

Given four elementary schools in the process of implementing whole language, how did the implementation and continuation of the philosophy affect the library programs and the librarians in these schools? Specifically, this study addressed the following questions:

1. What changes occurred in the knowledge, perceptions, practices, and beliefs of the librarians?
2. What changes did the librarians make in the library programs as a result of whole language?
3. What roles did the school librarians play during the implementation of whole language?
4. How did the librarians feel about the whole language philosophy and its impact on the library program?

Methodology

Qualitative research techniques were selected for this study because they provide detailed descriptions of the impact of planned educational change (Herriot & Gross, 1979). A comparative case study was designed to examine the role school librarians played in the implementation of whole language, to provide practitioners with concrete examples of how library programs change when teachers begin to use whole language strategies in their classrooms, and to identify factors that affect the ability of librarians to support and implement change.

Sample and Population

The study took place in four elementary schools in a medium-size school district in central Virginia. The site was chosen for two reasons: (1) the school system has a history of successfully implementing planned educational change (Walsh, 1993), and (2) the school system received national recognition for its efforts to implement whole language (White et al., 1992).

Procedure

Data were collected over a four-month period the winter and spring of 1993. Data collection techniques included: (1) participant observation, (2) formal and informal interviews with librarians, (3) formal interviews with principals, (4) interviews with teachers at each school, and (5) the collection and examination of relevant documents.

Data analysis occurred in two phases. Each school was treated first as a comprehensive case in and of itself. The data from each school was then used to build categories and themes that conceptualized the data across the four cases, thus establishing the generality of the findings.

Findings

The findings presented here represent a summary of the data that were gathered and analyzed for this study. For a more in-depth discussion of the data, see *The Impact of Whole Language on Four Elementary Schools* (Hughes, 1998).

What changes occurred in the knowledge, perceptions, practices, and beliefs of these school librarians?

While each of the librarians believed in the theoretical principles of whole language, none of them felt they had enough knowledge about the philosophy to support teachers and students or to implement the philosophy in the library. They committed themselves to learn about the philosophy. They attended conferences, participated in workshops offered by the school system, read widely in the professional literature, and learned from the teachers in their buildings.

The librarians' efforts to learn about the philosophy enabled them to successfully implement whole language practices in the library. They used whole language strategies such as literature circles, story mapping, conferencing, mini-lessons, webbing, journaling, and modeling. The librarians organized their instruction so that the students learned from each other, as well as from them, and they encouraged students to reflect on what they had learned.

The librarians also realized that a cooperative relationship with teachers was no longer adequate—they needed to become active members of the instructional team. As one of them explained, "Whole language shows us that it's a group effort. We're all responsible for what our children learn and how they accomplish their tasks." The librarians energetically reached out to teachers by joining the school's leadership team, scheduling time to plan instruction with grade groups and individual teachers, and conducting professional development sessions for teachers.

In addition, it became evident to the librarians that internalization of the research process was crucial to student success—it could no longer be left to chance. They worked with teachers and students to learn how to develop essential questions, access prior knowledge, locate and evaluate print and nonprint resources, use specific note-taking strategies, and communicate their knew understandings.

What changes did the librarians make in the library programs as a result of whole language?

The four librarians in this study found that fixed library schedules interfered with the flow of learning and with equitable access to information. As one of them explained, "Whole language won't work if [the librarian] sees scheduled classes everyday. Teachers and kids need to be able to get in the library. [The librarian] needs to be able to work with teachers." Each of the librarians instituted a more flexible and open schedule that allowed students and teachers to use the library in many different ways: for individual reading and browsing, small group research, work on the computer, and whole class instruction.

The librarians also made changes to the physical layout and climate of the library. They created spaces for students to work independently, in small groups, and in large groups. There were comfortable reading areas—story blocks, rocking chairs, sofas, and even Clifford's Dog House. Emergent readers, beginning-to-read books, and transition novels were either shelved in separate areas of the collection or specially designated in the online catalog. Student work was displayed both inside the library and on the walls outside the library. And, as Calkins (1991) put it, the librarians made an increased effort to know the students' stories. They asked about their families and outside interests or hobbies, discussed books with them, and followed up on projects they had begun in the library and finished in their classrooms.

The librarians changed their approach to collection development as a result of whole language. As teachers began to teach differently, their needs for library materials changed. It was no longer enough for the library to provide supplementary materials. Teachers expected the library to provide instructional resources—trade books to support the "read to," "read by," and "read with" components of the literacy program, and nonfiction tradebooks and other print and nonprint resources to support student learning in the content areas.

Students' information needs also changed as a result of whole language. As one librarian put it, "The kids became more demanding consumers." Students in kindergarten and first grade asked for books they could read independently. Students in the upper grades searched for specific titles and authors and browsed less. The amount and level of research also increased. Students in the primary grades conducted basic research. Students in the upper grades moved beyond simple fact-finding to interpreting, synthesizing, presenting, and evaluating new knowledge.

In response to these demands, the librarians shifted their focus from developing balanced collections to identifying the enacted curriculum and purchasing resources to support student learning in each curricular area. They purchased more nonfiction, especially nonfiction written at lower reading levels, science big books, and nonprint resources like videos, audiobooks, laser discs, and CD-ROMs to support student research needs.

They also purchased more resources to support literacy development—emergent readers, beginning-to-read books, transition novels, big books, and classroom sets of books. As one of them explained, "...I wasn't aware that I needed to be so careful in purchasing. I got what was out before, and now it's critical that I have things on all reading levels...particularly things on the lower end of reading levels."

The librarians also changed the selection tools they used to include journals like *Reading Teacher*, *Language Arts*, *Booklinks*, and *The Web*—resources that are more thematically organized. In two of the schools collection development became a more collaborative process. Several teachers in these schools were children's literature experts. The librarians relied on these teachers to help select emergent readers, beginning-to-read books, and transition novels.

What role did the school librarians play during the implementation of the whole language philosophy?

The librarians in these four schools played two important roles during the implementation of whole language. First, they helped teachers understand and implement the philosophy in their classrooms by providing instructional and professional resources, modeling whole language practices in the library, and helping teachers develop problem-based research assignments.

Second, they used whole language as a springboard for implementing the vision for school library programs in *Information Power: Guidelines for School Library Media Programs* (American Association of School Libraries & Association for Educational Communications and Technology, 1988).[1] It was clear to them that whole language and *Information Power* (AASL & AECT, 1988) were based on the same key theoretical principles and that a dynamic, student-centered library program was essential to authentic student learning.

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[1] This study was conducted prior to revision of Information Power: Guidelines for School Library Media Programs.

In order to implement *Information Power* (AASL & AECT, 1988), the librarians became change agents. Two of them acted as enablers—change agents whose primary role is to provide encouragement and support to teachers as they implement an innovation (Grossner, 1973). The other two acted as catalysts—change agents whose primary responsibility is to upset the status quo and prod and pressure teachers to make changes (Shirk, 1978).

The level of success each librarian experienced varied and was dependent on five factors: (1) the culture of the school; (2) principal support; (3) the librarian's knowledge and interpersonal skills, (4) the librarian's reaction to district level changes, and (5) time.

Culture of the School

The librarians were most successful in schools where there was an already-existing collaborative and collegial culture among the faculty. In two of the schools, the faculty and staff were used to working in a host of cooperative ways. They spent time together "hammering out" what whole language meant to them, figuring out what it would look like in the classroom, and creating a shared vision for the school library program.

At the other two schools the teachers interacted in a friendly way, but there were tensions that prevented the librarians from implementing a more student-centered library program. At one school the tensions resulted from too much change too quickly—a new building and a new principal, increased enrollment accompanied by staff turnover, the adoption of whole language, and the introduction of site-based decision making. Teachers in this school needed support adjusting to these changes, not pressure to implement a new library program.

At the other school, the faculty worked cooperatively on many projects, but a small yet powerful group of them opposed the changes to the library program. Instead of working with the librarian to create a shared vision for the program, they engaged in turf battles over issues like who should decide how the library program functions, who owns the research process, and who knows more about children's literature.

Principal Support

All the major research on innovation and school effectiveness shows that principal support strongly influences the likelihood of successful change. In these four schools, the principals understood the theoretical connection between whole language and effective library programs. They actively promoted the library program with their faculties, supported the change to flexible scheduling, encouraged teachers to plan with the librarian, and maintained or increased the level of funding for the library program. As one principal put it, "an effective whole language school is dependent on a quality school library program—one that is student-centered and promotes authentic learning."

Knowledge of the Librarian

Individuals matter in school reform. In these four schools, the knowledge and skill of the librarian were critical to the ability to implement an effective integrated library program.

Two of the librarians seemed intuitively to understand the change process. They realized that if they wanted teachers to accept a new vision for the school library program, they needed to focus on changing teachers' perceptions and beliefs, not just their behaviors. To do this, they engaged in power-sharing and formed advocacy groups. They involved opinion leaders in their schools in decisions about how the library program would function and what resources were needed. They also gave teachers time to adjust to changes in the library program. Rather than insisting that teachers immediately change the way they used the library, they met the teachers "where they were" and provided them with the level of assistance that would make them "happy with what they were doing."

The other two librarians were less knowledgeable about the change process, and as a result, experienced first-hand the frustration that internal change agents experience when they learn about the change process incidentally through trial and error. Both of them falsely assumed that if they made changes to the structure of the library program—that is, if they moved to flexible scheduling and implemented a formal process for collaborative planning—teachers would change their beliefs and attitudes about how the library program fit into the overall educational program. Both of them seemed unaware of the significance of power-sharing as a way to build trust and give teachers ownership in the change process. Each of them made key decisions about the library program that directly affected teachers and their students without involving them in the decision making process. In addition, they expected teachers to immediately change how they used the library—an unrealistic expectation that increased teacher resistance.

Librarians' Interpersonal Skills

According to Lippitt & Lippitt (1978), effective leaders must possess not only intellectual abilities and aptitudes, but they must also have personality characteristics that make it possible for them to work effectively with people. Two of the librarians had personalities that made them natural change agents. Teachers described them as "bubbly," "outgoing," friendly," and "energetic." Teachers perceived them to be patient, realistic, and empathetic. Teachers liked and trusted them.

The other two librarians, while certainly friendly, were more formal and business-like. The teachers at one school described the librarian as "inflexible" and "negative." At the other school, teachers perceived the librarian to be overwhelmed. They described her as "harried" and "running ragged."

District Level Changes

Changes in higher levels of the educational system affect the implementation of change at the school level. In 1992, the school board eliminated the central office media supervisor position and changed school board policy to allow schools to hire reading specialists to take on the responsibilities of school librarians. Librarians in the district believed these decisions showed how little the school board understood and valued the role of the school library program. Their beliefs were reinforced when several schools in the county used site-based decision making to reduce funding, and in one case eliminate funding, for the school library program.

Two of the librarians reacted strongly to the school board's decisions. They were angry and worried that library programs were in danger of being eliminated. They felt isolated from the staff at central office and the decision–making process. Unfortunately, they brought their fear, anger, and resentment to their interactions with teachers. Teachers described these librarians as self serving, negative, and inflexible.

The other two, while not happy about the changes, saw them as a reason to become more proactive. They responded by joining the school's leadership team, attending additional professional development, and forming collaboartive relationships with key leaders in their school and at the central office.

Time

Change takes time. Individuals need time to learn about an innovation and how it will affect them; to adjust to new organizational structures, materials, skills, and methods; and to negotiate new roles and relationships (Hall & Hord, 1987). For two of the librarians time was an important factor in their success. The teachers at their schools were leaders in the whole language movement. As Hall & Hord predicted, they had moved beyond issues of management and organization to concerns about how whole language would impact student learning. They were ready to work collaboratively with other teachers, including the librarian, to implement additional instructional changes that would benefit students.

Teachers at the third school were still gathering information about whole language and determining how it would affect their classrooms. They were not yet ready to think about how their use of the library and their relationship with the librarian should change. Teachers at the fourth school were comfortable with whole language, but felt they did not have enough information about integrated library programs to embrace the change.

How do the school librarians feel about the whole language philosophy and its impact on the library program?

When the four librarians in this study heard that the school system planned to adopt the whole language philosophy they were excited and hopeful. One of them remembered thinking, "It's about time. They finally figured it out." They believed the implementation of whole language was exactly what librarians and libraries needed, that it would enable them to bridge the gap between the old view of the school library and the vision described in *Information Power* (AASL & AECT, 1988).

As implementation progressed, two of the librarians maintained their enthusiasm and optimism. At their schools, student and teacher use of the library increased, students became more excited and purposeful readers, teachers worked more collaboratively with them, the research process was taught K-5, and library instruction was tied directly to the classroom curriculum.

At the other two schools, the librarians became disappointed and discouraged. At their schools, despite their efforts, use of the library decreased, circulation dropped, and teachers became less willing to work with them than before. They attributed their difficulties to the increased size of classroom collections, the lack of support from central office staff, and a lack of district-wide professional development for teachers about the role of the library program in a whole language school.

Conclusions

The findings of this study show that school librarians are capable of being active participants in the implementation of whole language. The four librarians in this study openly embraced the principles of whole language and succeeded in integrating them into their instruction. They helped teachers in their efforts to understand and implement the philosophy by providing instructional and professional resources, modeling whole language practices in the library, and helping teachers develop problem-based research assignments. The findings also indicate that school librarians can use school reform efforts, like whole language, as a tool for implementing the national guidelines for effective library media programs. In order to be successful, however, they must be knowledgeable about the innovation, the change process, and the role of change agents.

Implications for Practitioners and Library Educators

The findings of this study suggest that school librarians must have an understanding of current research on teaching and learning and the factors that affect successful implementation of change. They must assess their ability to function as change agents. They must ensure that they have the knowledge, leadership skills, attitude, and personality to guide the change process effectively. They must understand how to engage in power sharing and form advocacy groups, and they must anticipate resistance to change and develop strategies for overcoming this resistance. They must also attend professional development opportunities with teachers. Teachers must view the librarians as partners in the change process and perceive them as knowledgeable about instructional innovations. Lastly, librarians must advocate for school library programs, not by demanding or expecting changes, but by actively and thoughtfully entering the educational dialogue. This means listening carefully and with an open mind to teachers' concerns and questions, knowing how and when to communicate, and knowing from whom to seek support.

Library educators must provide opportunities for pre-service librarians to learn about educational change and current research on teaching and learning. In addition, they must provide students with opportunities to work collaboratively with teachers prior to entering the field. Courses such as resources for children and young adults, the instructional role of the library media specialist, and web design lend themselves to collaborative efforts both with practicing and pre-service teachers.

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Images of Poverty in Contemporary Realistic Fiction for Youth

Preliminary Results of a Content Analysis Using a Social Psychological Conceptual Framework

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This preliminary study of 20 contemporary realistic fiction books for youth in middle school and above, analyzed images of poverty using a framework adapted from Leahy (1981, 1983). Findings indicate that, as a whole, the books in this sample rely on concrete images of poverty and do not adequately represent current demographic data for people living in poverty in the United States. The paper concludes with suggestions for how teachers and school librarians/media specialists can use these books with students.

Introduction

The incidence of poverty among children is staggering. Even in a time of national economic prosperity as evidenced throughout the 1990s, almost 20% of all children in the United States under the age of 18 live in poverty (U.S. Census, 1997). In addition, one child in three spends at least one year in poverty during his or her lifetime and for more than 5% of these children, poverty lasts ten years or more (Children and Poverty, 1997).

There are various suggestions for how to reduce child poverty. For example, sociologists and public policy leaders have suggested that "child poverty can be reduced by a combination of policies…[and] programs that provide benefits in the form of goods and services (such as food, housing, and health care) which are vital to children's well-being" (Children and Poverty, 1997). As these authors note, these policies and programs must be consistent with public beliefs, and in recent years, public support for welfare and food stamp programs has waned.

Mass media often shapes public opinion, and there is evidence that individuals' social behaviors and opinions are formed early. Developmental and social psychology research indicates that beliefs and value systems related to gender roles, pro-social behavior, and economic inequality develop through childhood (Dickinson, 1990; Eisenberg, 1995; Katz, 1983,1988; Leahy, 1981, 1983). As children begin to question the values of their parents and other significant adults, the media—including books—have a potentially powerful influence on their value systems (Campbell & Wirtenberg, 1980; Dickinson, 1990).

Children's books and their images of society have long been considered an influence on the thoughts and perceptions of the young reader. Previous work has examined children's books for their images with respect to race (Edmonds, 1986; Alexander, 1987; Monroe, 1988), gender (Nelson, 1991), and age (Odoms,1992). Most of these studies have relied on content analysis as a methodology because it allows for an objective and systematic evaluation of texts "according to a particular theoretical, political, sociological or psychological framework" (Short, 1995). Few studies exist, however, which examine poverty or economic concepts in books for children (see Chafel, Fitzgibbons, et al., 1997 for a review of these). According to Chafel, "one factor that has contributed to the persistence of poverty emanates from existing societal images that portray the economically deprived in negative ways *and limit policy on their behalf*" (1997, p. 432). Yet, it remains uncertain how accurately poverty is portrayed in these books and whether, as Campbell and Wirtenberg (1980), Machet (1993), and Chafel (1997) argue, inequalities are being perpetuated by these portrayals.

Questions and Conceptual Framework

This study seeks to answer the following general questions:

- What are the images of poverty found in contemporary realistic fiction for youth?
- Are these images consistent with findings from developmental psychological research on children's conceptions of economic inequality?

An earlier study (Chafel, Fitzgibbons, et al., 1997) analyzed eighteen contemporary realistic fiction picture books for children from preschool through third grade. The analysis considered nine demographic and sociological categories such as race/ethnicity, geographic setting, and occupation. This study found that the books presented poverty in a fairly realistic manner as compared to 1994 United States census figures. There were several limitations of this earlier study: the structure of the books allowed for limited exploration of poverty concepts, few books about poverty were available for this age level, and an analysis could not be carried out using a full conceptual framework such as that presented in the work of Leahy (1981; 1983).

Leahy's (1981; 1983) research investigating children's (ages 5-18) conceptions of economic inequality provides the analytic framework for the current study. Leahy found that as children mature their characterizations of economic inequality move from the concrete to the abstract. More specifically, their understanding evolves from peripheral conceptions (e.g., appearance, possessions) to psychological ideas (e.g., self-concept, values) and then to sociological conceptions (e.g., life chances, class consciousness). These three main categories—peripheral, central (psychological), and sociological—along with demographic factors, serve as the framework for analyzing the content of the books in this study. (See Appendix A for a further description of this framework.)

Methodology

Many more books are published than are readily accessible to youth due to the selective nature of most collections of juvenile literature in school and public libraries. For this reason, a comprehensive list of books with relevant subject headings was not chosen from *Children's Books in Print* or a similar source. Instead, works of contemporary realistic fiction for grades 5 through 12 published since 1979 with poverty as a central theme were identified through subject listings in basic and specialized selection sources (e.g., *Middle and Junior High School Catalog*, *Adolescents at Risk*), as well as from articles and bibliographies in journals. (See Appendix B for a complete list of selection sources.) This approach insured that the books met criteria of quality, popularity, and usefulness.

From the resulting list of approximately 60 titles, a sample of twenty books was selected to reflect the diversity of potential poverty-related factors such as geographic setting and race/ethnicity. (See Appendix C for a complete list of titles in the sample.) Of these twenty titles, twelve were published in the 1990s and eight were published between 1979 and 1989. Using selection sources, the age of the main character, and professional judgment, thirteen books were deemed most appropriate for middle and junior high readers, while the remaining seven titles were considered most appropriate for senior high readers. Of these seven titles, only two were considered potentially inappropriate for middle and junior high readers due to language and sexuality. Twelve titles had male central characters, six had female central characters, and two books had equally prominent male and female characters.

The two researchers read and analyzed in common six titles in order to establish consistent and reliable use of the coding scheme. One researcher read all twenty titles and analyzed an additional eleven titles on her own; the second researcher analyzed an additional three titles on her own. There will be formal inter-rater reliability checks in the second stage of the study when an additional twenty books from the initial list as well as a group of books from the 1970s will be analyzed.

Findings

Demographics

In this study, fourteen books portrayed white characters in poverty, four had Hispanic characters, one had a Native American character, and one had an African-American character.

In terms of the numbers of white and non-white characters, these figure are somewhat comparable to the data in the Chafel, Fitzgibbons, et al. (1997) study. In neither study were there Asian-American characters present. Since approximately half of those persons living in poverty in the United States are white (Blank, 1997), figures from both of these studies are fairly representative of those found in real life. The sample from the current study fails to reflect, however, the disproportionately large number of people of color who live in poverty compared to the number of non-Hispanic white persons who do (Blank, 1997).

Since more than 26% of African-Americans live in poverty (United States Census Bureau, 1997), the limited presence of African-American characters in the sample is surprising. In reviewing an earlier book list generated for this study, it is evident that many of the books about African-Americans living in poverty were published in the 1970s. Perhaps fewer books with African-American characters are being written or perhaps authors are trying to more fully depict African-American's lives. Conversely, it was surprising that so many Hispanic characters were present in the sample since articles have addressed the issue of the lack of Hispanic characters in literature for youth even though they are the fastest growing minority in the United States (Barry, 1998).

In examining family structure found in the books in the sample, six portrayed two-parent families (30%), seven had single-parent families (six single mothers, one single father) (30%), and seven (35%) had no parents due to death or abandonment. These figures are inconsistent with figures for single mothers heading poor families which indicate that this group makes up 60% of those living in poverty in the United States (Blank, 1997). Chafel, Fitzgibbons, et al., (1997) found a slightly higher, but still inaccurate, proportion of single mothers (40%) in their sample. The sample more accurately reflects reality in terms of the number of two-parent families, which make up about 35% of those living in poverty (Blank, 1997). The number of books in this sample in which characters have no parents is particularly disproportionate. This could be a plot device to enhance the tension in the books; the resulting image, however, is stereotypical, not accurate.

Determining geographic settings for the sample titles was a challenge because of vague descriptions provided by the authors as well as the transient nature of the characters' existences. Generally, there were more urban settings (eight books, 40%), than small town (six books, 30%) or rural (two books, 10%) settings. In four books (20%), characters live in vehicles, traveling frequently, or shift often between temporary hotels, the street, and homeless shelters. While the figures for urban areas are consistent with current figures (United States Census Bureau, 1997), the sample inaccurately represents the number of persons living in rural and small town settings—only 24.6% of persons living in poverty in the United States (Blank, 1997). Instead, the number of rural and small town characters in the sample mirrors the 1970 poverty demographic much more closely (Blank, 1997). The books in the sample fail to situate any of their characters in suburban areas, although 32.6% of persons living in poverty reside in the suburbs (Blank, 1997).

Images of Poverty

Using the coding framework derived from Leahy (1983), an analysis of the images of poverty in these initial twenty books demonstrates that images in the peripheral category account for, on average, 70% of the poverty images in each book. The peripheral category contains subcategories such as physical appearance, residence, health and nutrition, and family life, all of which are tangible indicators of characters' lives in poverty. This dependence on tangible images to portray poverty is perhaps not surprising since, from an authorial perspective, filling in details of characters' everyday lives and circumstances is perhaps easier than describing their psychological conflicts or sociological beliefs. Unfortunately, such a dependence on tangible aspects of living also tends to prohibit an extensive discussion of other variables relevant to poverty that might support young readers' growing awareness of and action on social issues (Katz, 1988).

Of the peripheral subcategories, the health and nutrition subcategory accounts for an average of 15% of the poverty images presented. Many of these references are to food, descriptions of what was eaten as well as to the scarcity of it. Sanitation and hygiene issues are also frequently noted in these books. Certainly this attention to images of health and hygiene is not unexpected since food is one of the basic needs for survival that is often compromised in impoverished conditions. Similarly, the references to health and hygiene issues reflect a variety of poverty indicators such as living conditions, available income, and reliance on social welfare services.

The other most frequently represented peripheral subcategory is money; this category represents on average 10% of the images of poverty portrayed in the sample. To some extent, the fact that money is the second, not the most highly, portrayed poverty image is surprising since poverty itself is defined in terms of money and income. In the sample, money is frequently depicted in terms of its insufficiency to meet current needs or as a precious commodity, where even a seemingly small amount is regarded with awe.

It is interesting to note that in only one book is there any explicit mention of banking or bank accounts; however, in several books characters save money on their own for purchases or to help provide for their families.

One of the prominent images drawn from the peripheral category is that of reading. In many of the books analyzed for this study, characters are shown engaged in reading as one of their principal activities and pastimes. For example, in *Maniac Magee*, Maniac is seldom seen without a book in his hand, and on several occasions he finds solace in the public library. Likewise, in *Monkey Island*, Clay is an avid reader whose favorite book is *Robinson Crusoe*; in *Shiloh*, David is a comic book fan; in *Mary Wolf*, books carry Mary far away from her troubles; in *Tex*, Tex frequently settles back to read something about horses; and in *Secret City, U.S.A.*, Willie broadens his world by reading the newspaper. Not only, however, do characters read for pleasure, but they also engage in reading to others or in helping others learn to read. For instance, in *Cloud Dancer*, Eileen frequently reads the sports pages from the newspaper to her brother Neal, Maniac helps his older illiterate friend Grayson learn to read, and in *Make Lemonade*, LaVaughn reads to Jolly's children and helps tutor Jolly in reading, writing, and related school work.

Central, or psychological, images of poverty account for an average of 20% of the poverty images in each book. This category contains subcategories for morality, values, self-esteem, and emotional state that serve as indicators of the characters' responses to their conditions of poverty. According to research by Leahy and others, it is these sorts of indicators, reactions, and awareness that young people begin to bring to bear on issues of social and economic inequality at around the middle school level, developing more fully through high school. Although there were only four subcategories to represent these psychological images (as opposed to ten subcategories for the peripheral group), one might conclude that authors may not be reflecting adequately the developmental level or needs of their audience as they portray characters in poverty in young adult books.

Of the central subcategories, the two most frequently depicted are self-esteem and emotional state, each accounting for an average of 7% of the poverty images portrayed. Often, characters display signs of poor self-concept or of feeling defeated or insignificant because of their economic circumstances. Other times, characters seem to work deliberately hard to convince themselves of their worth. Unlike self-esteem, emotional reactions are portrayed more one-sidedly, frequently (and perhaps, realistically) showing anger, frustration, and disappointment instead of happiness, acceptance, and optimism.

Sociological images of poverty constitute an average of 10% of the depictions of poverty in the sample. Life chances, class consciousness, political power, and prestige are the four subcategories that constitute how the characters view poverty's effects on their lives and opportunities, especially in relation to people of differing economic statuses. These four subcategories, though sparsely represented in the sample, represent some of the most powerful images of poverty, giving young readers opportunities to see how their fictional contemporaries struggle to manage and change their lots in life. Of course, some characters are ashamed and frustrated by their circumstances. Disregard for public assistance as well as for people of higher economic classes is relatively common in the books.

Of the twenty books analyzed in this study, only one book, *Make Lemonade*, provides examples from each of the eighteen coding categories; *Tex* and *You're Dead, David Borelli* had instances of seventeen of the eighteen categories. Most books provided a more limited or narrow view of what it means to live in poverty. Political power and prestige were the least frequently used categories, found in only three and four books respectively, reflecting the lack of emphasis on sociological descriptions. The fact that examples of work were found in only eleven books would be, somewhat surprising except that the coding focused primarily on the central characters, almost all of whom were under the age of eighteen when getting a job is more expected. The four categories in which instances were found in each of the twenty books were all peripheral subcategories: activities and pastimes, residence, material possessions, and health and nutrition. Again, the emphasis of the books in this sample seems to be on tangible, easily represented images of poverty; yet, the examples of central (psychological) and sociological categories remain powerful images and potential targets for discussion among young adults.

Emerging Themes

Though this content analysis has been primarily deductive rather than inductive, a number of important and relevant themes related to poverty have become apparent in the first twenty books. The themes, including homelessness and criminality/violence, do not fit neatly into the coding framework in large measure because these themes, like poverty, are evidenced by a variety of factors. These themes are important to the discussion of images of poverty because in many of these twenty books they loom as both causes and consequences of poverty.

Homelessness is one of the most prevalent themes in these initial books and in many peoples' minds, homelessness remains perhaps the most extreme example of life in poverty. In nine of the twenty books examined in this study, a central character is homeless for at least a portion of the book. For example, in *Monkey Island*, *Street Family*, and *Maniac Magee*, the main characters are completely on their own—no families, no homes—although these characters find some haven and comfort with other homeless people. The characters in *Outside Looking In*, *Come the Morning*, and *Mary Wolf*, unlike those noted above, have families who share in their struggles, while the characters in *Lupita Manana* and *Secret City, U.S.A.* have families who are unable to give their children assistance.

Violence is another prevalent theme in the initial sample of books. In some instances, violence is a risk associated with being homeless (e.g., *Monkey Island*, *Street People*, *Maniac Magee*). In other instances, violence is a both a threat and a fact of life resulting from living in impoverished areas where public protection may be less available (e.g., *Make Lemonade*, *The Secret of Two Brothers*, *Secret City, U.S.A.*). In yet other instances, violence results from the frustration and anger of living in poverty (e.g., *Mary Wolf*, *Outside Looking In*). The notion of people in poverty as victims of crime and violence is consistent with statistics which indicate that low-income persons are substantially more likely to be victims of crime than high income persons (Blank, 1997).

Conclusion

The new *Information Literacy Standards for Student Learning* (AASL/AECT, 1998) emphasizes the importance of teaching students to critically analyze and use information from a variety of sources, including fiction, in order to work with others and to participate proactively in a democratic society. As noted previously, literature has the potential to influence the developing belief systems of the children and adolescents who read it. Consequently, the books that form the sample for this study may have the capacity to affect young people's understanding of poverty as well as to effect their reactions to this pervasive condition. Teachers and school librarians/library media specialists, as the facilitators of students' critical use of information, are then key players in making this possible.

One way teachers and library media specialists can make good use of these books is as starting points for engaging students in active discussion and meaningful inquiry. For example, teachers and library specialists can help students explore the images in these books and how they compare with what they know and learn about their own communities, classmates, and experiences. Similarly, students could compare the images in these books with the more limited and stereotypical images of life in poverty that are presented in television and the movies (Blank, 1997). These discussions or inquiries might spur or culminate in an authentic learning activity where students work with other students, their schools, their families, and community leaders to inform others about poverty or to effect change in some particular aspect of poverty locally.

Other possible uses of these works of fiction are as the basis for a social justice curriculum or in reader-response activities. In his model curriculum on homelessness, a theme related to poverty, Lewis (1996) suggests that fiction is essential in helping students develop knowledge of opposing value systems. Hutchison (1993) suggests that fiction on homelessness can also serve as a useful foundation for reader-response because it encourages students to reflect on ideas and values that may be unfamiliar to them. It is this dissonance created by these students' confrontation with ideas about poverty and inequality that are different from the ones they hold which drives the students' growth and development (Leahy, 1981, 1983).

For the fourteen million children under the age of eighteen who live in poverty in the United States, the images of poverty presented in this initial sample of twenty books are likely to be all too real. For the remaining 60 million children in this age group, these images present them with a rare opportunity to experience, albeit vicariously, the hunger, filth, shame, and hopelessness—as well as the elation experienced with a good meal, a safe bed, and a promise of something better—that are part of the poverty experience. There is room for improving the range and balance of poverty images presented in realistic fiction for youth so that more abstract images that spur students' cognitive and social development are present. However, the books that were analyzed as part of the study form a useful *base* from which educators can draw to assist all students in understanding life in poverty provided that the use of these books is augmented with additional resources, thoughtful guidance, and reflective activities.

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Appendix A: Coding Categories Adapted from Leahy (1981; 1983)

CATEGORY	DESCRIPTION
Peripheral	External, observable qualities or surroundings of the central character **which are not demographic characteristics** and which are presented explicitly or implicitly in the text
• Physical appearance	The central character's physical features and appearance of clothing which are not demographic characteristics
• Activities and past-times	Hobbies, past-times, leisure activities, or other non-labor-related activities in which the central character engages
• Neighborhood and community	Geographic or social environment in which the central character resides
• Residence	The central character's living quarters
• Material possessions	Items, owned or borrowed, in the possession of the central character
• Health and nutrition	Descriptions of the central character's diet, nutrition, personal hygiene, and health conditions
• Work	Descriptions of the central character's for-pay activities
• Education	Descriptions of the central character's school life
• Money	Descriptions of the central character's absence or presence of money and related purchasing/saving decisions
• Family life	Non-demographic descriptions of the central character's family life
Central	Psychological traits or qualities of the central character which may be presented explicitly or implicitly in the text
• Morals/Religion	Ideas and actions concerning ethics, moral dilemmas and choices, and religion held by the central character
• Values	Ideas about the purpose of life, work ethic, value of education, etc. held by the central character
• Self-esteem	The self-esteem or self-worth held by the central character or other characters' estimation of this
• Emotional state	The general emotional state (i.e. happiness, sadness, anger, etc.) expressed by the central character
Sociological	Conceptions of class held by the central character which are presented explicitly or implicitly in the text
• Life chances	The central character's quality of life or opportunities which are explicitly claimed as consequences of wealth or poverty
• Class consciousness	Conflicts between the central character and persons of different economic classes; central character's recognition of differences among economic classes.
• Political power	The central character's influence on society or government which is contingent on economic class position
• Prestige	Level of respect given to the central character which is contingent on economic class position
Demographic	
• Age	Age of the central character
• Race/Ethnicity	Race or ethnic background of the central character
• Location	Where the central character lives
• Family Structure	Structure of the central character's family (e.g. head of household, siblings, extended family)

Appendix B: Selection Sources

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Appendix C: Complete List of Titles

(Bullets indicate titles that are part of the preliminary analysis.)

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Angell, Judie. *Dear Lola, How to Build Your Family*. Dell, 1986.

Anderson, Mary. *The Unsinkable Molly Malone*. Harcourt Brace Jovanovich, 1991.

Barre, Shelly A. *Chive*. Simon and Schuster, 1993.

✱ Beatty, Patricia. *Lupita Manana*. William Morrow, 1981.

Betancourt, Jeanne. *Not Just Party Girls*. Bantam, 1990.

Branscum, Robbie. *The Adventures of Johnny May*. HarperCollins, 1984.

✱ Brown, Susan M. *You're Dead, David Borelli*. Atheneum, 1995.

Byars, Betsy. *Wanted ... Mud Blossom*. Delacorte, 1991.

✱ Collier, James Lincoln. *Outside Looking In*. Macmillan, 1987.

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Cooper, Melrose. *Life Riddles*. Holt, 1994.

Cottonwood, Joe. *Danny Ain't*. Scholastic, 1992.

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London, Jonathan. *Where's Home.* Viking, 1995.

Lynch, Chris. *Shadow Boxer.* HarperTrophy, 1995.

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McDonald, Joyce. *Comfort Creek.* Delacorte, 1996.

✱ McGuigan, Mary Ann. *Cloud Dancer.* Scribner, 1994.

Myers, Walter Dean. *Motown and Didi.* Viking, 1984.

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✱ Naylor, Phyliss R. *Shiloh.* Atheneum, 1991.

Naylor, Phyllis R. *Send No Blessings.* Atheneum, 1990.

Neufeld, John. *Almost a Hero.* Atheneum, 1995.

Paulsen, Gary. *The Crossing.* Dell Laurel-Leaf, 1990. (1988 orig.)

Rylant, Cynthia. *Missing May.* Orchard, 1992.

Sachs, Marilyn. *At the Sound of the Beep.* Dutton, 1990.

✱ Santiago, Danny. *Famous All Over Town.* Plume, 1984. (1983 orig.)

Smothers, Ethel Footman. *Down in Piney Woods.* Alfred A. Knopf, 1993.

✱ Spinelli, Jerry. *Maniac Magee; a novel.* Little, Brown, 1990.

✱ Springer, Nancy. *Secret Star.* Putnam, 1997.

Wilson, Jacqueline. *Elsa, Star of the Shelter.* Whitman, 1996.

Wojciechowski, Susan. *Patty Dillman of the Hot Dog Fame.* Orchard, 1989.

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Young People's Reading and Information Use at the End of the Century

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This paper presents a pilot research project carried out in five schools in a specific district in a province of South Africa, the survey methodology followed, as well as some of the key findings. This survey is based on a similar survey of young people's reading and information use carried out in the United Kingdom in 1995 and 1996. It provides information on young people's reading which is useful for publishers, librarians, writers, illustrators, teachers, and parents.

Introduction

This paper will focus on the 1997 pilot project in secondary schools in District N3 of the Gauteng Department of Education conducted by the Children's Literature Research Unit, which examined and will continue to study South African children's reading and their information use in South Africa. This project is part of a greater study carried out by The Children's Literature Research Centre, Roehampton Institute in London, UK, which examined what young people are reading at the end of the 20th century. The pilot phase which began in 1993 was completed in 1994 and a report on this phase entitled *Contemporary juvenile reading habits: a study of young people's reading at the end of the century* (1994) was compiled. The main research project was carried out in 1995-96 and resulted in the publication of *Young people's reading at the end of the century* (1996). Following the success of the British based study researchers from Roehampton Institute proposed that similar studies be conducted in other countries, such as South Africa. The Children's Literature Research Unit (CLRU) in the Department of Information Science at the University of South Africa (Unisa), Pretoria agreed to implement the research project, beginning with a pilot project. The CLRU thought that a preliminary project phase would offer insight into the most efficient ways of conducting a research project of this magnitude in a country undergoing great political and social change. This paper will present the methodology used and findings of this pilot project.

In many countries extensive research has been done on children's reading interests. To date no extensive research has been carried out in South Africa and although some isolated studies have been done over the past decades this work is already outdated because of political changes in South Africa. One of the reasons the CLRU decided to conduct this research project in South Africa was because of the real need for accurate information on children's reading and information use by people working in the fields of education, library and information science and publishing as well as for local authors and illustrators of books for children.

Without insight into children's reading habits, preferences and information use it is difficult for publishers, librarians, teachers and parents to motivate children and young people to read and use information. Information skills such as collecting, organizing and analyzing, and communicating ideas and information have been identified as key competencies for effective participation in the emerging patterns of work and work organization. In fact, they are essential competencies for effective functioning in today's world. It is assumed that Africans will follow Western models and patterns, however reliable information on their reading interests and information needs are required in order to provide effective library services, to publish and provide books they will find interesting so as to motivate reading and thus promote literacy.

The completed project aims to include a fair representation of South African learners in Grade 5 through to Grade 10. Only learners in the age group 10 to 16 will be included in the final analysis - although many students in South African schools are already over the age of 16 when they are still in Grades 9 and 10 their questionnaires will not be included in the survey results as they could be regarded as adults. The sample of students will take into account variables such as the 11 different official languages used in South Africa; gender; geographical location (i.e. rural and urban schools in all nine provinces of South Africa); type of school attended (i.e. government funded and private) . The first phase of the pilot project, however, focuses only on secondary school students (Grades 8, 9, 10) in five English-medium schools in one school district of Gauteng Province's Department of Education.

Research Questions

The goals incorporated into the South African pilot project are to understand the relationship between reading and attitudes to a range of topical social issues; examine the ways in which children and young adults encounter and choose what to read; provide information about the reading habits and information use of children and young adults of different age, sex, class, ethnic background, geographical location and educational sector; and discern between conventional forms of reading (printed matter) and new developments in the presentation of and interactions with text (including audio tapes, video games, CD-ROMs). The CLRU intends to compile a database of the research findings, which will allow academics, librarians, publishers, authors, illustrators and parents to consult these so as to better understand what children and young adults would like to read.

Methodology

Questionnaires

Dr. Kimberley Reynolds of The Children's Literature Research Centre, Roehampton Institute provided the CLRU with a copy of each of the questionnaires used for the different British key stages in their research project. Roehampton Institute holds the copyright to all these questionnaires, but Dr Reynolds agreed with the CLRU's suggestion that the questionnaires needed some modifications for use with South African learners. As the resarchers at the CLRU had decided not to survey learners in Grades 1 to 4 it was not necessary to use the questionnaire for key stage 1. Researchers at Roehampton Institute had found that teachers needed to help these very young learners to complete the questionnaires and that this was a very time-consuming process. The questionnaire for key stage 2 is appropriate for Grades 5 to 7 in the primary schools and the questionnaire developed for both key stages 3 and 4 is appropriate for Grades 8 to 10 in the secondary schools. Many questions simply required terminology changes (e.g. "newsagents" to "supermarkets" and "films" to "movies"). Some terms were omitted which the CLRU thought were pertinent to British learners only (e.g. "charity shops" and "specialist hobby shops"). Conversely, the CLRU added questions and terminology which were relevant to South Africans, or were considered essential to understanding all aspects of literacy in South Africa (for example, questions on oral traditions). All changes made to questionnaires were for purposes of clarity and relevance in South Africa. Researchers presented the questionnaires to youth librarians from the main and Mamelodi branches of the Pretoria City Library and to students in the Department of Information Science at Unisa in order to receive comments and suggestions from the perspective of librarians and different ethnic groups. Furthermore, the Sociology, Religion, and African Languages Departments at Unisa were contacted to determine proper terms for common religious affiliations and a complete list of the official languages in South Africa. Otherwise, as few textual changes as possible were made to the Roehampton questionnaires in order to ensure that many of the results could be compared.

Permission was sought from the Education Research Unit of the Gauteng Department of Education to carry out the pilot phase of the research project in schools in one of the 16 school districts under their jurisdiction. They requested that a number of organizations, such as the READ organization (a South African NGO: Read Educate and Develop), be contacted to ensure no overlap in research. They also requested some changes to the format of the questionnaire. The request was to divide the lengthy questionnaire for key stages 3 and 4 into three separate questionnaires and the questionnaire for key stage 2 into two separate questionnaires. Using shorter questionnaires would enable learners to complete a questionnaire in a much shorter time as each learner would still complete one questionnaire apiece. However this meant that the researchers had to use three times the number of secondary school learners and double the number of primary school learners in their samples than would have been used if only the original questionnaires had had to be completed by learners. The Educational Research Unit gave permission for the researchers at the CLRU to use schools in District N3 and provided a complete list of all the schools in this district so that a sample could be drawn.

After a pretest of the questionnaires using volunteer learners who were not part of the sample, it was decided that one class period of forty minutes was necessary for a researcher to explain the project, introduce the questionnaires, and answer any questions from learners before and during their administration.

Questionnaires were distributed to students between September 12, 1997, and October 10, 1997. Between October and December, questionnaires were checked, coded, and loaded onto SPSS, a statistical analysis and data management system also used by the researchers at Roehampton. The additional written information provided by respondents which could not be read statistically due to the _open_ nature of the question would have to be interpreted by CLRU members for evaluation in a supplementary report.

Ethics

Throughout the pilot project great care was taken to keep research ethics in mind. The privacy/confidentiality of respondents was respected as no young person participating in the project was required to answer any questions to which s/he took exception. Furthermore, all students were guaranteed that questionnaires would be and will remain anonymous; no names or identifying numbers were attached to the questionnaires which were collected and placed in envelopes. The CLRU's researchers thought that to ensure students gave as truthful responses as possible they should not be inhibited by their teachers.

Each school that participated in the project received some donated and specially purchased books as a gesture of appreciation for their assistance and the principal was informed that a copy of the final report would be supplied.

Sample design

Schools under the jurisdiction of the Gauteng Department of Education may only be surveyed between the months of April and September. Therefore, it was decided to divide the pilot project into two phases. Students in the secondary English-medium schools in district N3 would be surveyed before October 1997 and pupils in primary schools would be surveyed in April and May of 1998. A list of all 236 schools in district N3 and revealed that there were 47 secondary schools (or combined schools), 36 English schools, and 11 Afrikaans schools.[2]

The 36 English secondary schools included 17 state and state-aided secondary schools (includes 2 rural combined schools)[3], 8 private secondary schools, and 11 combined (primary and secondary) private schools.

The number of students in N3 secondary schools in 1997 was 25,775 (includes Afrikaans schools, technical schools as well as students in Grades 11 and 12 in all schools). The total number of students in Grades 8, 9, and 10 in English schools could not be determined and as the sample should comprise 5% of these students it was decided to use 10% of the English-medium schools in the district in the hope that this would ensure a sample of approximately, if not more than 5%.

Most schools in South Africa are coeducational: the only single-sex schools are convent schools and a boy's and girl's high school (see sample of schools drawn below). There was no conscious attempt to work with these single-sex schools as it was a randomly drawn sample. As for gender breakdowns, the ratio of girl to boy learners is roughly fifty-fifty.

In order to provide a representative sample taking the all variables into account, the CLRU researchers met with statistical consultants in the Department of Statistics at Unisa to decide how many schools were needed to acquire a representative sample. Once the schools were divided into the categories noted above, a volunteer randomly chose one school from each envelope (containing slips of paper with each schools' name). The sample included the following:

- secondary, urban, state-funded, single sex school
- combined, urban, private, single-sex school
- secondary, urban, state-funded, coed school
- secondary, urban, private, coed school
- secondary, urban, state-funded, coed school.

Fieldwork

School principals were approached and asked to participate in the project. All schools agreed, although some asked that a preliminary meeting be set up in order to learn more about the project. Although the CLRU originally planned (Children's Literature Research Centre Roehampton Institute 1996:v) to conduct interviews with a small sample of learners at participating schools, the CLRU was unable to implement this aspect of the research project for time efficiency reasons.

Validity of the responses

All errors recorded from the pilot project survey results will be examined and remedied prior to commencing follow-up phases. At least two researchers from the CLRU were present during administration of questionnaires in order to answer questions and explain phrasing or certain terms. For example, researchers found that many students were uncertain as to the meaning of "sibling," "dialogue" and "fiction." Each survey session began by writing these three words on the blackboard and defining them aloud to the class.

Many of the African students who use English as a second or third language, had difficulty understanding many of the questions. When the questionnaires for the primary schools (two for key stage 2) were translated into Tswana and Northern Sotho (two of the most commonly spoken African languages in Gauteng Province), it was learnt that there are no concepts for time gradation in the African languages. Therefore, questions asking a learner to indicate "never, hardly ever, sometimes, often, or very often" are most likely to be misunderstood by African students whose time frames include "doing something" or "not doing something" (for example "visit the library" or "not visit the library"). Researchers found this may explain why many of the African students participating in the survey had problems filling out certain parts of the questionnaire. Cultural implications are important to note for further phases, and certainly must be taken into consideration when examining data validity for some questions posed in the pilot project.

Researchers found when examining the collected questionnaires that many students chose to omit certain questions, leaving blank answers. Other students who perhaps misunderstood the question (see reasons noted above) left open certain answers. These "incorrect" or "blank" responses were read by the computer as "missing cases." Therefore, computer data was supplied in two sets of percentages: one encompassing all learners participating in a given questionnaire (i.e., 154 boys for Q4), and another for valid cases only (after filtering out "missing cases"). Certain sections generated more "missing cases" than others, such as Poetry in Q4, which gave students the option to skip the entire section after answering "no" to the first question ("Do you ever read poetry?").

Another issue was the discarding of questionnaires altogether after collecting them from students. The researchers decided that if less than two-thirds of a questionnaire had been completed, it must be discarded. Furthermore, all questionnaires completed by participating students whose age did not fall within the set sample limits (10-16 years) had to be discarded. This proved to be a greater problem when surveying students in schools where some of them were aged 17 to 21 in grades 8, 9 and 10. For example, the urban township school enrolled many older students who lacked adequate English language skills and were therefore "behind" the average age for that grade. Because so many questionnaires had to be discarded, the researchers were disappointed that survey results would not be representational.

Survey details

The sample selected for phase 1 of the pilot study consisted of five schools and 958 participants with 877 respondents (key stages 3 and 4). However, this number should be divided by three as the questionnaire for these key stages was divided into three separate questionnaires. This results in a much smaller number of only 292.3 full questionnaire equivalents. It would have been desirable to ascertain what percentage this was of the total number of students in grades 8 to10 in District N3 at the time, because 292.3 appears to be considerably less than the required 5%. The similarity between the numbers of 14, 15, and 16 year-olds means that the sample used in the pilot project is a reasonable representation of 8th, 9th and 10th graders.

Key Findings

Time constraints do not permit a detailed discussion of the findings. This paper therefore highlights some of the key findings of the pilot study, as well as some similarities and discrepancies between these key findings and those of the original survey in the United Kingdom.

How young people choose books and comics

When choosing what to read young people are more influenced by external attributes than by reflections of themselves in texts. In the United Kingdom (UK) survey nearly half of the young people surveyed say they choose the books they read because of the title and in the South African (SA) survey an interesting title was also an important factor with the boys who say they "often" or "very often" choose a book because of its title being 49.6% and the girls 53.3%. In SA media (TV, radio, book review, or audio tape version) had very little impact on the respondents choice of a book. On the issue of books in home languages, boys' responses were divided between "very often" (32%) and "never" (32.7%), whereas 46.8% of the girls claimed this factor is never an issue in their book selection. In the UK survey the blurb on the back or inside the cover was major factor in book choice for young people aged between 11 and 16 years; girls of this age said blurb and title are the most important factors affecting the way in which they chose books to read.

In the UK survey when young people chose a book because of the appearance of the cover, it is because "it looks up-to-date/modern." In the SA survey a modern look was also the most important factor by young people who are influenced by the cover's appearance ("often" 24.1% of the boys and 20.8% of the girls). Young people are influenced by fashions (clothes, music, and graphics), because books are obviously also part of this process, their covers need to be modern or fashionable.

One of the questions which was added to the SA survey was "Do you prefer reading books in Afrikaans, English or in an African language?" in order to determine what language preferences are being adopted by South Africans of the next generation. Interestingly, the vast majority of students (97.1% of boys and 98.4% of girls say they prefer to read English books. Although only one student chose Afrikaans this was not surprising as the survey excluded schools where Afrikaans is the language of instruction. Only 2.1% of boys and 1.6% of girls opted for books in an African language.

South African respondents read more magazines (93.9% boys and 97.9% girls) than comics (boys 77.6% and girls 72.9%) and their reasons for choosing magazines and comics were confined primarily to three of the options: you like its appearance, you like the illustrations, you think it is good value for money.

Thinking about fiction

The 1996 UK survey revealed that horror is the most popular fiction genre for adolescents. While romance is the least popular choice for boys across all the ages, it is also not a popular choice for girls except at ages 14 to16 years (38.6%). Humor is also are popular with students of all ages.

In the SA survey the most popular fiction genres for the girl respondents were romantic stories (53.3%), school stories (47%), mysteries (40.6%), and religious stories (37.3%). Only 36% of the girls indicated that they "often" or "very often" read horror stories. However, the most popular fiction genre for SA boys was horror (42%), but this choice is closely followed by humor stories (38.9%) and mysteries (37.4%). It is possible that horror stories are not as popular in SA, particularly amongst township youth, because many of these young people are exposed to a high level of violence and crime in their daily lives and so may have less desire to read about it.

Out of school (and after-school) activities

The four out-of-school/after-school activities preferred by the boys in the SA survey are sports (48.6%), listening to music on tapes/records/CDs (48.1%), playing with friends (37.1%), and watching TV (34.5%). The three activities preferred by the girls are listening to music on tapes/records/CDs (49.6%), watching TV (41.5%), and listening to the radio (40.7%). More girls than boys spend time reading fiction for fun, but the most common answer for both genders is that they spend very little time (less than one hour per week) on this activity.

In the SA survey 58.9% of the boys claim to be average readers while 59.3% of the girls say they are average readers. More girls (21.3%) are enthusiastic about reading than boys (20.2%), and fewer girls (19.4%) than boys (21%) state that they are reluctant readers but these differences are very small. The UK survey findings in this regard were dissimilar because twice as many boys (23.2%) as girls (11.5%) regard themselves as reluctant readers.

Reading for information

In the UK magazines are young people's favorite form of factual reading. In SA, however, more boys indicated that they prefer reading about social issues in newspapers (40.6%) than in magazines (36.1%). South African girls prefer reading about social issues in magazines (41.7%) but also like to read about these issues in novels/stories (20.9%). The UK survey found that girls' favourite non-fiction reading is about animals and plants, but SA girls favorite was reading about their bodies. Sport is the most popular nonfiction subject with SA boys. Overall this section on reading for information generated a greater number of responses and also more positive responses from the boys suggesting that more boys than girls prefer reading nonfiction.

Conclusions

A great deal of information has been collected in the first phase of this South African pilot project and there are both interesting similarities, but also a number of differences, when these findings are compared to those of the larger survey carried out in the United Kingdom. The appearance of books and comics significantly affects their appeal to young people. Magazines and newspapers are important sources of information for young people, yet in SA there are no magazines or newspapers specifically published for teenagers as is the case in many other countries such as the UK, USA and Canada. It is hoped that these surveys will provide writers, publishers, illustrators, librarians, teachers, and parents with valuable insights into young people's reading preferences and information use.

Notes

1. The authors would like to thank Thomas van der Walt and Dr Felicité Fairer-Wessels of the Children's Literature Research Unit in the Dept of Information Science for their assistance in carrying out the survey.
2. (A postgraduate Masters student in the Dept of Information Science at Unisa is carrying out research within Afrikaans medium secondary schools for her Masters degree)
3. It was agreed not to separate the schools between urban, rural and township because there are only two rural (combined) schools in N3, making the figures too insignificant to count separately, so they were included in the 17 state and state-aided schools.

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Contemporary juvenile reading habits: A study of young people's reading at the end of the century. (1994). London: Children's Literature Research Centre, Roehampton Institute.

Young people's reading at the end of the century. (1996). London: Children's Literature Research Centre, Roehampton Institute.

Part 4:

Powerful Partnerships

Unleashing the Theory

Connecting Learning Theory to Building Information Seeking Skills

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This study surveyed 126 school librarians in eighteen countries, representing 131 schools serving more than 113,260 students. The survey instrument requested respondents to describe techniques they used to facilitate information literacy, their perceptions of their functions in the development of independent learners, and the training they received that enabled them to mediate information seeking and use skills. Survey data revealed that the respondents relate information skills instruction to students' interests, work with other teachers to place information seeking skills within the context of students' course work, and encourage students to share ideas and skills with each other as they build their own search strategies. Results indicate that the creation of independent, self-directed, lifelong learners is the goal of school librarians over the world. But data also reveal that most of the respondents spend less than a quarter of their time working with teachers to plan connected programs and that many school libraries are understaffed.

Introduction

A function of library service is information skills training, also referred to as library user education, library orientation, bibliographic instruction and, most recently, the development of information literacy (Evans, Amodeo, and Carter, 1992). In the past the term "bibliographic instruction" was used to describe a process that focused almost exclusively on identifying and introducing resources organized within the library's walls. Today, through electronic information services, information professionals are able to provide access to information wherever it resides.

If a major facet of library service is to teach individuals to use information resources, why are potential users not using the resources? Faculty and librarians at universities and colleges note that, after twelve years of instruction in the schools and opportunity for exposure to the services of public libraries, incoming freshmen have not internalized prior information skills training and continue to resist bibliographic instruction (Mellon, 1987). Research suggests that group lectures focusing on specific locational skills isolated from personal context do not result in students' learning and applying information skills. Students also learn little from demonstrations when they are given no opportunity to practice what they have seen (Havighurst, 1952; Pitts, 1994).

Recognizing that effective instruction incorporates opportunity to practice and apply what is learned, leaders in information studies urge examination and application of the findings of cognitive science and constructivism in all kinds of libraries (Kuhlthau, 1993; McNeer, 1991; Nahl-Jakobovits & Jakobovits, 1990; Shirato, 1991). The teaching of library skills now includes the teaching of information skills with an emphasis on learning to solve information problems. Similarly, information professionals are now encouraged to talk about theory as it informs this process (Carey, 1998). Librarians, especially those working with children and adolescents, are becoming more effective as they learn more about how people learn and allow their knowledge of learning theory to shape their information skills training. As Kuhlthau states, "Experience solidly grounded in an understanding of [learning] theory is the basis for making diagnoses and designing services that respond to dynamic needs of clients," (1993, p. xviii).

From the early twentieth century empirical behaviorism dominated the practice of the educational establishment (Barsalou, 1992), but findings in linguistics, information theory, and computer science combined with developmental psychology after World War II to create the field of cognitive psychology. Cognitive psychology offers a way to study the invisible constructs of the human mind and presents a view of learning that provides an alternative to studying only behavior that can be observed (Barsalou, 1992; Resnick, 1987).

Educational constructivism yields some insights for librarians. It originated in Piaget's theories of the development of knowledge and the social-interaction theories of Lev Vygotsky and Jerome Bruner sees knowledge not as a single reality to be grasped by the learners. In constructivist theory, the concept of truth is replaced by workability, and reality becomes a personal interpretation of the world that changes through social interaction (Wheatley, 1991). Education is focused on the individual becoming a self-directed problem solver. Problem solving requires finding, interpreting, and using information (Tuckett &

Stoffle, 1984) and utilizing higher order thinking skills. As Aaron points out, "active learning goes hand-in-hand with critical thinking and effective problem solving" (1990, p. 40), substantiating the call for active involvement of the learner as he or she forms, tests, and revises mental models until a useful one emerges (Bruner, 1986; Dewey, 1933; Pitts, 1994). Librarians who provide information skills training and assistance to library users are clearly helping the users to think critically and solve problems while learning to meet informational needs.

Information seeking is a problem solving activity that has changed with technological advances. The advent of telecommunications has made available vast amounts of information of varying levels of accuracy. In addition to finding it, the information seeker must evaluate the pertinancy and relevancy to his or her personal store of knowledge. If we are to look on this task as a constructivist who sees that the application of what is learned is central to learning (Perkins, 1991), we recognize that the process of finding the information cannot be divorced from the process of using it. Librarians, therefore, are bound to facilitate understanding as well as physical access to information. In other words, the goal is to assist library users to attain "information power" by facilitating their development into independent, self-directed learners.

Information Power: Building Partnerships for Learning, the 1998 guidelines for school library media specialists/school librarians, speaks to the activities of the information professional in mediating the student's construction of knowledge. This document recommends that school librarians help students become self-directed learners by implementing three constructivist learning techniques:

1. Promote relationships with information sources in the contexts of learning experiences.
2. Model the attitudes and skills of the independent information seeker.
3. Collaborate with teachers, students and others in the learning community to develop efficient strategies of inquiry for responsible decision making.

With these principles in mind the investigators constructed a study to examine how school library media specialists/school librarians currently guide students to the attainment of information literacy. The purpose of this study is to identify certain characteristics of school information service programming in the United States and in other countries and to compare them, identifying training levels for and common practices employed in offering information skills instruction programs. The study reveals school librarians' awareness of and their utilization of current research to inform their instruction toward information literacy. It is hoped that this study will contribute to our understanding of how school library media specialists can apply research theories and models to library and information skills instruction, thereby closing the gap between theory and practice and improving our instruction toward information literacy for our students.

Research Methodology

Research questions

This study addresses four questions:

1. What techniques do school library media specialists/school librarians use to facilitate information literacy?
2. What is the perceived function of school library media specialists/school librarians in the development of independent, self-directed learners?
3. What training do school library media specialists/school librarians receive to enable them to mediate information seeking and use skills?
4. What are international trends in provision of information seeking and use skills?

Respondents

The basis of this study is the reports of 126 library media specialists/school librarians who are members of the American Association of School Librarians and/or the International Association of School Librarianship, a 19% response rate for the survey. The respondents represent eighteen nations and 131 schools serving 113,260 students. The investigators sent a total of 645 questionnaires to 370 randomly selected members of AASL and 275 of IASL. Of the respondents, 87 reported membership in AASL, 39 in IASL. and 16 in both organizations. Ninety-six respondents claimed membership in two or more professional organizations, and fifty (40%) in three or more. Six respondents also noted membership in various education associations. In total, the 126 respondents belong to a total of 97 separate professional and/or educational organizations.

Since the IASL and AASL membership lists do not indicate whether individuals currently manage school libraries, the investigators enclosed a letter requesting that a recipient who was not now in a school library facility pass along the questionnaire to one who was. Eleven retired librarians used the return envelopes to wish us luck with our project.

Questionnaire

The four page questionnaire that investigators sent to potential respondents was divided into three areas: general questions concerning the facilities, questions concerning participants' educational backgrounds and exposure to learning theories, and questions concerning techniques they used in their information skills programs. The last ten questions were open-ended, inviting school librarians to describe the techniques they used to facilitate information literacy. Five media specialists in the United States and five school librarians in St. Lucia tested the questionnaire.

Results

Research question 1. What techniques do school library media specialists/school librarians use to facilitate information literacy?

The strategies school librarians used for helping students find information fell into three general areas. Librarians communicated with teachers in order to make the information seeking tools relevant to students' immediate interests, that is, their course work. They modeled efficient actions and enthusiasm as they guided students through their information gathering experiences. They gave students opportunities to practice skills related to information quests, they asked students questions to help students articulate information needs, they provided environments that invited students to communicate with each other while brain storming and making predictions, and they encouraged students to write throughout the search process. The major difference between helping students find information for course assignments and for personal use was the involvement of other teachers in the former and the use of general booktalks, reading lists, and author visits in the latter.

Librarians reported that they used group-constructed checklists and rubrics to check sources (print, electronic, and interpersonal) against certain evaluation criteria: accuracy, reliability, authority, pertinency, relevancy, and currency. Here was an activity in which the differences between fact and opinion and between primary and secondary sources could be emphasized. One respondent indicated that students across the school were expected to cite sources in APA style. This way, the students not only learned the importance of citing sources in a consistent style and learned the style at the same time, but they also became aware of the issues of currency and authority. Respondents reported that they used educational web sites that provided evaluation activities for other web sites and that their students examined URLs to identify the authority of sponsoring entities.

Strategies for helping students complete the search process by making use of information resulted in some visible product of the search such as traditional written reports and static displays, multimedia slide shows, student bibliographies, and student-constructed web pages. One librarian reported that her students designed money market portfolios based on stock market research.

Respondents reported that they used oral discussion, journals, or learning logs to offer students opportunities for reflection throughout the research process. One who addressed the presence of prediction and evaluation in the reflection phase of the information seeking process wrote, "[I] ask a series of questions which helps them evaluate their level of success in locating what they need, to refocus if necessary, and to consider what results a different approach would yield. This is a good opportunity to help a student recognize that the Internet is not the answer to all information needs." Seven respondents noted that this reflection phase was either missing or minimal in their activities. Five said they did not do enough, one said she had never emphasized reflection but planned to, and one reported that she considered it to be something teachers, rather than librarians, did.

The question that most respondents chose not to answer was "How do you help students recognize the importance of information to a civil society?" Some who did answer this question said that they encouraged students to compare news stories on television, radio, the newspaper, and the World Wide Web. Others indicated that they helped their students relate their findings to what was happening in their communities. Three respondents indicated that they were diligent about providing free, or at least "reasonable," access to a broad range of information through their libraries. Two people activities in which students investigated access to information in other time periods—one was the Middle Ages, the other was Ancient Egypt.

Respondents referred to the Internet Acceptable Use Policies established in their facilities as a major method for promoting ethical behavior in the information search process. Guarding against plagiarism and complying with the copyright laws were addressed through the requirement that all sources be shown. Respondents reported that learning to take clear paraphrased notes contributed to behaving ethically in the research process. The use of one style manual, district or school-wide, throughout the grades, was indicated as a method for standardizing the showing of sources leading to a situation in which source citation would be observed by students as a natural and integral part of the process. One librarian pointed out that she was scrupulous about modeling ethical behaviors in information gathering. She extended that behavior to helping teachers to follow suit. "[I] encourage teachers to do the same and support them with appropriate resources so they are not tempted to violate their intellectual property rights or others' in front of their students."

Respondents reported that they encouraged collaboration in the pursuit and generation of information through providing opportunities for group and cooperative learning situations. They also emphasized the importance of linking search strategies to course requirements through collaboration between librarians and other teachers. Strategies to achieve this collaboration included seeking input, notifying of new materials, and attending curriculum meetings. However, one librarian noted that she did not encourage group work, ". . .as the group work usually lands on one member." She said she generally limited group work to brain storming. One librarian indicated that she sent a weekly email newsletter to other teachers and that she requested that they team to write grant proposals. Another mentioned that she sought the expertise of individuals beyond the school community.

Research Question 2. What is the self-perceived function of school library media specialists/school librarians in the development of independent, self-directed learners?

Respondents in the survey described the "ideal" graduate of their information skills instructional programming as an independent learner who could recognize a need, then access, evaluate, communicate, and create information from print, electronic, and interpersonal sources, and determine the most appropriate source for the needed information. The ideal graduate would read for personal pleasure—one respondent added that her ideal graduate would be a public library user. In addition, the confident and independent information seeker possesses the important characteristics of flexibility and resourcefulness.

Respondents wrote that knowledge, skills and attitudes (including enthusiasm and ethical behavior) combined to contribute to the evolution of the independent, self-directed, confident, and questioning lifelong learner, and the librarians who responded viewed themselves as facilitators in the information seeking process.

Reactions to their school library varied among the respondents. Those who reported that their libraries received strong official support also noted that students responded enthusiastically to their programs and excelled in later pursuits. Those who reported that their facilities were understaffed noted that there was no time for collaboration with other teachers to integrate information searching skills with coursework and that students reactions were "lukewarm." One librarian related that, in her village, education was not given high priority and students were not receptive to her program. Another observed, "Staff need to believe in the program and give status and prestige to the need for the skills."

Respondents reported that they could see dramatically positive responses when the skills learned were directly related to assignments in other classes. One said that at first students indicated that they did not think they needed information skills training, that they already knew how to find and use information. But as they progressed in her program they delighted in their new found skills and wanted to share their new knowledge and skills with others. One wrote that students reacted enthusiastically when projects interested them or when the skills enabled them to do something new but that they reacted "with arrogance" when asked to plan Internet searches in order to save time. "They seem unable to believe that someone over 30 knows anything about computers. . ."

Respondents noticed attitudes reflected age level. A primary school librarian in a Caribbean country with competitive external exams related that children in grades 1 through 4 were excited about learning information skills. When they began concentrating on exams in grades 5 and 6, the children seemed to lose their enthusiasm. This respondent observed that, "Teachers also seem to motivate them less and feel that [information seeking] projects are a waste of time instead of enhancing lessons." A librarian in one high school in the United States observed that children in grades 8 and 9 were enthusiastic information gatherers but that in grades 10 through 12 motivation appeared to decline. On the other hand, a librarian in another school indicated that she thought that by the time students reached there second to last year in high school, they appreciated that their information skills training was preparing them for success beyond high school.

Research Question 3. What training do school library media specialists/school librarians receive to enable them to mediate information seeking and use skills?

Of the respondents, 110 (88%) indicated that they were certified/trained librarians—77 had a master's degree in the field; and seven reported that they were currently working on certification. The respondents' qualifications as teachers were as follows: 104 (83%) indicated that they were certified/trained as teachers, and one reported working toward that goal; 44 had a master's degree in education; and five held doctoral degrees. Opportunities for continuing education more than once a year were available to 86 respondents; 22 reported they had annual opportunities. Ninety-three (74%) noted that they had read research related to learning theories during the last year.

When asked to identify educational theorists known to them from a list provided by the investigators (John Dewey, Jean Piaget, Carol Kuhlthau, B. F. Skinner, Jerome Bruner, Nicholas Belkin, Lev Vygotsky, Robert M. Gagne, R. S. Taylor). Dewey (113), Piaget (115) and Skinner (108) topped the list. Information theorists Kuhlthau (51),Taylor (15), and Belkin (11) were less familiar, and constructivist Lev Vygotsky was recognized by only 19 respondents. Respondents were then requested to list any educational theorists who had informed the development of their information skills programs. Of the names provided by the investigators, respondents credited Carol Kuhlthau (18), Jean Piaget (14), John Dewey (9), B. F. Skinner (5), Jerome Bruner (5), and Lev Vygotsky (3) with influencing their programs. These results indicate that school librarians in this study looked to the fields of education, information studies, and beyond to assist them in their practice as mediators of information seeking and use skills (see chart below).

Influences on the Development of Information Skills Programs

Adler, Mortimer
Belkin, Nicholas J.
Berkowitz, Robert E.
Bloom, Benjamin
Brake, Terrance
Breivak, Patricia
Bruner, Jerome
Callison, Daniel
Carroll, John
Chiro, Dede
Chomsky, Noam
DeBono, Edward
Dede, Chris
Dewey, John
Dignazio, Fred
Eisenberg, Michael B.
Eisner, Elliot
Freeman, Judy
Gardner, Howard
Gawith, Gwen
Gilligan. Carol
Goodlad, John
Hay, Lynn
Haycock, Carol A.
Haycock, Ken
Helm, Judy Harris
Henri, James
Jacobs, Heidi Hayes
Hunter, Madeline
Illich, Ivan
Irving, Ann
Johnson, David W.
Johnson, Roger T.
Joyce, Marilyn
Katz, Lillian
Krashen, Stephen
Kuhlthau, Carol
Loertscher, David
Lundin, Roy
Maslow, Abraham
McKenzie, Jamie
McLuhan, Marshall
McTighe, Jay
Meek, Anne
Montessori, Maria
Pappas, Marjorie
Piaget, Jean
Pipher, Mary
Pitts, Judy M.
Pollack, William
Shrock, Kathy
Sizer, Theodore
Skinner, B. F.
Smallwood, Carol
Solomon, Gwen
Stripling, Barbara
Sylvester, Robert
Tallman, Julie
Tepe, Ann
Todd, Ross
Trelease, Jim
Vygotsky, Lev
Wiggins, Grant
Wolfe, Pat
Yucht, Alice H

There were 99 references to the use of written standards/guidelines to assist school librarians with their information skills programs. These included *Information Power: Building Partnerships for Learning* (44), *Learning for the Future: Developing Information Services in Australian Schools* (8), IASL documents (2), state or provincial standards (21), district or school standards (16), Eisenberg and Berkowitz's "Big 6" skills curriculum (9), and general professional reading (6).

Research Question 4. What are international trends in provision of information seeking and use skills?

Although response rates were disappointing and prevent use for meaningful statistical analysis, 144 individuals representing 20 nations responded. Among the respondents, 126 from 18 counties contributed information about their libraries, their users, their training and the information skills programming they provided. Within the United States, responses came from 34 states. Descriptive analysis of these results identifies some similarities and a number of differences between the respondents in the U.S. and those from outside the U.S.

Terminology was one of the most notable differences: only 34% of respondents called themselves "librarians", another 12% were "teacher-librarians," the rest were "media specialists" or "information resource coordinators." It is interesting to note that teacher-librarian is a non-U.S. appellation, used by 48% of all of the non-U.S. respondents. Approximately half (51%) of the U.S. respondents and 34% of all those who replied estimated that they spent at least 50% of their time involved in direct teaching activities.

Respondents commonly reported understaffed facilities: 55% of U.S. respondents and 25% of the other respondents said they worked in one-person libraries with no additional support. Five percent of U.S. respondents and 18% of non-U.S. respondents were not trained as librarians. The same percentages of respondents indicated that they had infrequent opportunities for pursuing continuing education programs. Most of U.S. respondents (95%) reported purchasing materials for collections, as did most non-U.S. respondents (91%) reported purchasing materials for collections, and 85% of U.S. and 88% of non-U.S. respondents said their libraries or centers provided access to digital materials. OPACs were present in 85% of U.S. libraries in the study and 75% of non-U.S. libraries, 10% of U.S. respondents with OPACs provided only mediated searching due to shortage of equipment. All non-U.S. respondents with OPACs were able to allow direct student searching. Internet access in the school library was reported by 97% of U.S. respondents and 94% of non-U.S. respondents. In 8% of the U.S. and 19% of the non-U.S. respondents' libraries, equipment constraints meant that Internet access was mediated.

Responses to the survey showed that the creation of independent, self-directed, lifelong learners was the goal of both groups for both groups of respondents: 45% of the U.S. group and 35% of the non-U.S. respondents reported that they spent more than 50% of their time teaching. But over 81% of the U.S. and 84% of the non-U.S. respondents spent less than 25% of their time working with teachers to plan programs that linked skill development to their learning tasks.

Forty-four school librarians from the United States, Australia (two of eleven respondents), Canada (one of four respondents), and Finland (one), referred *to Information Power: Building Partnerships for Learning* as the guidelines that informed their practice. Eight of the eleven respondents from Australia referred to own their national standards and guidelines document, *Learning for the Future: Developing Information Services in Australian Schools*. One of the Australian respondents and the librarian in Jamaica indicated that they used guidelines provided by IASL. Twenty-seven of the U.S. respondents and one of the Canadian respondents referred to state, school or other regional standards and guidelines as did seven from Australia, one from New Guinea, and one from Jamaica. Seven U.S. librarians, one from Belgium, and one from Australia identified The "Big 6" as guidelines they used. Three from the U.S., one of the Australian respondents, the librarian from Jamaica, and a librarian from Iran indicated that their professional reading provided them with guidelines.

Conclusions

Worldwide, school librarians see themselves as facilitators and learners with the constructivist's perspective of learning. As facilitators, they provide safe environments for sharing ideas, coaching students by questioning, prompting and encouraging students to become independent information seekers. They assess learning while it is happening. Respondents indicated that they relied most heavily on observation, checklists and rubrics, and conferences as assessment tools--measures that can be applied throughout the learning and that invite student input in construction. Responses indicated that librarians strive to aid students to become efficient decision makers. Comments participants made indicated that their students usually appreciated the assistance of their school librarians. As learners themselves, school librarians read eclectically in the literature of information studies, general education, and information skills education. One librarian referred to Marshall McLuhan as someone who had informed the information skills program. School librarians use written standards and guidelines to evaluate their programs. They apply what they read to their programs, which they continually revise and refine.

The responses indicated that school librarians believe that strong school libraries require adequate staff support and up-to-date equipment. One librarian identified ingredients for a successful information skills program, writing that "We enjoy very high usage of our centre, both with formal classes and informal use from 7:30 a.m. to 5:00 p.m., due to a compilation of factors: instruction in the research process; collaboration with teachers who are very resource based; large relevant collection; good access to technologies."

Surprisingly, only 82 participants (65% of the sample) indicated that more than 50% of their information skills instructional programming related to course content taught by other teachers. Even more surprising is the high number (104) of participants who said they spent less than 25% of their time conferring with other teachers. Information skills research has shown that teaching information skills in the context of students' lives is key to their becoming information literate (Information Power, 1998). School librarians are urged in their coursework and their professional reading to connect to the other teachers through formal and informal conferences, marketing their resource centers, requesting input from other teachers, serving on education committees. Enlightening colleagues is not an easy task, as evidenced by comments made by respondents. One librarian characterized connecting information skills to other courses in her school as "an uphill battle." Another respondent's remarks summed up the consensus expressed in nearly all the responses: "Students who have gone through a structured program because their teachers are my partners have written in their learning logs that they have increased self-confidence and have a process for solving problems that they can apply to new situations. The trouble is convincing the more content-driven teachers that they need to integrate information literacy skills into their curriculum." The findings of this study suggest that in schools in which all teachers view themselves as learners, facilitators, and team members in the way school librarians do, the students progress smoothly and naturally toward becoming lifelong learners

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Revealing thinking

Teachers working together on information literacy

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Collaboration between library and teaching staff on single projects often goes well, but does not always lead to sustained collaboration or independent teaching in support of information literacy. Where teachers' understanding of information problem solving processes is under-developed and library media support is not available, multiple approaches to professional development are essential if teachers and children are to be empowered as information problem solvers. This paper presents and discusses two research initiatives in elementary schools in terms of factors influencing the path of professional development and sustained attention to information literacy. One has information problem solving as the primary focus whereas the second centres on teachers as learners and information problem solvers in their own right.

Introduction

As we move into the 21st century children are engaging with ideas and information sources that were not dreamed of thirty years ago, yet in some elementary classrooms changes in information literacy practice are hardly noticeable. The teacher may use a variety of information sources, the children may be enthusiastic, but they may not necessarily be *thinking with* and *about* the information they handle, or the processes they are in engaged in, in ways that empower them as future information problem solvers. While it is important to promote examples of excellent information literacy programmes, we need also to consider how to establish and maintain positive change in schools that are "stuck", where the spark of information literacy excellence has yet to be kindled.

Teachers' perceptions of information literacy and how it arises are critical factors in support for information skill development in the classroom. The question is how, in the face of competing educational pressures do we help the more reluctant teachers to explicitly support information literacy? From the outside, it can look like yet another curriculum add-on.

Focusing on information literacy in off-site courses provides one set of answers. Working collegially with school library media specialists provides another. A third option is for staff to participate in longer term distance learning, but none of these options deal with the wider issues of establishing and maintaining a different approach to teaching in the face of institutional pressures or collegial inertia. Research on school improvement outlines critical factors and sheds some light on the problem.

For example, Hopkins, Ainscow and West (1994) have found that school improvement initiatives will be more effective where they focus directly on, and provide professional development specific to, a school's needs. Those needs depend on the conditions prevailing in the school: the characteristics of the children, teaching styles and available resources, together with relationships among staff and the community. In particular Hopkins (1996) discusses relationships between *frameworks* (policies, management structures etc), *roles and responsibilities* and *ways of working*. He points out that, "When teachers are faced with acquiring new teaching skills or mastering new curriculum material; the school is often faced with new ways of working that are incompatible with existing organisational structures." It follows that failure to acknowledge these issues is likely to undermine the effectiveness of the best workshops or courses and efforts of school library media specialists.

The factors outlined by Hopkins et al. were examined to varying extents within the two research projects to be discussed here. Both had professional development in information literacy as a central concern in situations where library media support was missing. In both, the gains for staff and children were significant but the need for further attention to the wider context of information literacy programmes is evident.

The catalyst for the first study was a suspicion that learning activities in some elementary schools did not reflect the fact that "information skills" had been a central feature of the New Zealand National Curriculum since 1993. Previous research had shown that the cognitive and metacognitive demands of information problem solving are often hidden from teachers (Moore, 1995). It was therefore likely that some would not be supporting information skill development effectively, but there was little information available about the nature of their needs for targeted professional development.

A comparison of professional development processes and children's learning outcomes in four elementary schools followed. Surveys used to uncover perceptions of information literacy development were followed by on-site workshops for teachers of 7 to 11 year olds (Moore, 1998). This provided a snapshot of challenges that are a function of different school cultures and teachers with varying levels of information literacy understanding and commitment, as well as revealing much about children as information problem solvers.

A further study involving *all* teaching staff at a fifth school was prompted by the findings (Island Bay School & Moore, 1999). Again, aspects of the teachers' information literacy were revealed alongside those of children. Observing the students' experience of information problem solving was a key element in professional development. Reflection on teaching practice was heightened by use of action research as the teachers' major learning activity.

Research Questions

The extensive research questions for the two studies overlapped to some degree. Those of greatest interest here concerned description of :

- perceptions of information literacy among elementary school teachers,
- teachers' expectations of and children's experiences as information problem solvers,

- levels of support needed by children and teachers as information problem solvers, and
- ways of collaborating to make information literacy goals part of all learning activities.

An overall aim was to refine methods of professional development to promote continued integration of information skills across the curriculum beyond the life of the research.

Methodology

The first project involved four parallel case studies in suburban elementary schools over a period of a school year. Triangulation across six methods of data collection was expected to increase reliability and validity of research findings. Sources of information were as follows:

- survey of school documentation for evidence that information skills were explicitly addressed at policy level,
- interviews with principals, teachers with library responsibility and school administrators,
- survey of all teaching staff (N=40) covering understanding and expectations concerning information skills, resource-based learning and the role of the library and technology,
- participant observation of a series of four workshops held in each school for teachers (N=16) of children in years 3-6 (age range 7 to 11 years),
- four sets of classroom observations of children working on information problems, and
- teachers' observational notes and records of activity development.

Professional development centred on four workshops conducted in each school which were tailored to teachers' expressed needs, but which had a formal progression through the information problem solving process as a common framework. Staff developed classroom activities and children's information problem solving attempts were observed between workshops. Discussion of observations by teachers and the author supplemented professional development. Newsletters were used to promote some exchange of ideas between schools.

The second study centred on intensive professional development for *all* staff at a single elementary school over a period of four months. Workshops examining several models of information problem solving were used to focus attention on the demands placed on adults and children at various stages of that process. The main professional development activity, however, was action research on issues identified by teachers concerning problem solving and learning outcomes in their own classrooms. Thus while the first project centred on the information problem solving process, the second more actively focused on factors Halsall (1998) prioritised in guidelines for effective professional development:

- *"A collaborative approach to diagnosing needs and to designing, implementing and evaluating teacher developmental activities*
- *using teachers' own experiences as the chief starting point for learning activities*

- *encouraging and enabling staff to define their own learning objectives*
- *developing skills of critical, reflective thinking about classroom practice, school level issues and factors, and about the process of change*
- *integrating learning with action: the adoption of a problem posing and problem solving perspective.” (p.3)*

In addition, there was an emphasis throughout both studies on more knowledgeable people taking responsibility for parts of information problem solving that were challenging for learners. Vygotskian notions of "scaffolding" learning were simultaneously applied to teachers and children (Vygotsky, 1978). Again, this was made more explicit in the second study. In this case, the author was on-site for four months, providing workshops on information literacy as needed as well as practical research and teaching support. Again, teachers were continually encouraged to reflect on challenges they faced and the implications for supporting children completing resource based learning activities.

Data collection for teachers' individual projects involved surveys, direct observation and documentary analysis. Information sources of particular interest here are related only to the author's overall evaluation of the professional development initiative. They included staff planning documents, project development records, field notes from individual research discussions and workshops, teachers' written research reports and two evaluation surveys. The documentary data collection points listed allowed comparison of pre- and post-project plans and curriculum development in terms of information literacy content. The Principal was also interviewed to capture impressions of the profile of information literacy in the school at the beginning of the project. Although this evaluation could not be impartial, agreement across the variety of sources of data was expected to increase confidence in drawing conclusions about the effects of the project.

Both of these studies took place in New Zealand elementary schools where qualified information professionals were not available to support information technology and school library services. Instead, in all five schools, a teacher with a full class load took responsibility for the development of these resources and leadership in integrating their use across the curriculum.

Results/Findings

School Information Cultures: frameworks, policies and library management

Although information skills should be taught across the curriculum at all levels, there was no evidence of their consistent integration into policies of the four schools first studied. At best they appeared in one curriculum policy (usually English or Social Studies), thus the *frameworks* Hopkins (1996) identified as a factor in successful school improvement were weak with respect to information literacy. Further, in the only school with a strong emphasis on library development and use, there was a gap between policy and practice since teachers did not share the Principal's vision or integrate library use into teaching as mandated.

Indeed, the management structures in all four schools were weak in that access to information via the library was limited to a fixed schedule and qualified library staff were not available. Moreover, staff with library responsibility had no regular teaching release time for their library duties, and use of information technology in classrooms was uneven and in its infancy. Finally, all principals and teachers with library responsibility thought that teachers' information skills needed improvement.

The school at the centre of the second study was comparable in the profile it accorded to information literacy. The principal considered that before the initiative, information skills were being addressed but with little specific attention or awareness on the part of the teachers. There was an expectation that given the chance, the skills would simply emerge – a view agreed by half the respondents surveyed in the first study. Moreover, when the 14 staff were asked about the most important purposes of the library, the most common response was "providing resources". Only one response made a possible reference to potential for information skills development, *"space to use their skills"*. Perhaps the clearest indication that the library was relegated to the periphery of teaching and learning was that none of the action research projects designed by teachers looked at library use at all! Despite this, the initial survey of teachers in this school indicated that children in ten classes were expected to use the school library for topic work. (Again, this is similar to the situation in the four other schools.)

Not only were policy and management structures not supportive of information literacy in the five schools studied, but survey responses in the first four suggested that teachers held confused ideas about information literacy and its development.

Teachers' understanding and expectations about information skills

As discussed elsewhere (Moore 1998), only half of the teachers surveyed in the first study could describe any way to break information processes into manageable units for teaching. Those who could list components of any model at all focused mostly on defining a problem and locating resources. Actually evaluating, analysing, organising or otherwise operating on the information found did not feature in their responses to open-ended questions.

In the second study, as teachers worked through the information process for their own research, it was noticeable that needs for scaffolding of learning were greatest when defining the core information problem in *concrete, observable* terms and analysing and interpreting the data collected. Organising and presenting information in research reports was also very challenging for at least half the staff. (Publication demands and deadlines did contribute to that however, as did the fact that most staff had not done formal research before.)

One cannot generalize from case study material, but one wonders whether teachers' lack of ability and confidence during these phases of adult information problem solving are an echo of the fact that those responding to the survey did not refer to evaluating or interpreting information when describing the overall process. If so, it is little surprise that children were expected to develop these skills without explicit teaching. Certainly, as they worked through the action research process, as a group, the teachers in the fifth school provided a graphic illustration of the affective changes described by Kuhlthau (1987) as being associated with phases of information problem solving. In general, it appeared that even for the more recently qualified teachers, information skills had not been included effectively in training.

Effects of expectations of and about children as information problem solvers

Expectations about the children's abilities and information skills appear to have had a strong influence in the first study, not only on the learning activities designed for children and observed in class, but also on the participants' responses to professional development activities. For example, the four-school comparison showed variations in the extent to which the staff expected children to be knowledgeable, motivated, thinkers. Where expectations were high, workshop events were continually and spontaneously related to classroom experiences. Teachers already modelled reflective thinking in the classroom and extended this easily to discussion of information problem solving. Where expectations of children were low, staff seemed reluctant to apply workshop activities to classroom learning, clearly stating that this approach was too academic for their students. In class, they rarely praised children as thinkers, but expected children to distinguish independently between cognitive and social purposes of group-work as well as inferring demands of information tasks.

The school in the second study fell somewhere between these two extremes with children not rewarded frequently for thinking and only a few teachers modelling thinking and problem solving. Teachers did however frequently refer to children as a *"bright bunch and highly able"*. Tackling tasks from an information problem solving perspective was therefore not seen as beyond reach. This may of course be a function of the fact that teachers were engaged in the projects on different levels. In the first study they participated in workshops and created activities at least partly for the benefit of the researchers, whereas in the second, learning activities for children served teachers' curriculum, information skills and research goals.

So what did teachers expect 7 to 11 year olds to be able to do as information problem solvers? The majority of the 40 teachers in the first study recognised that every aspect of resource based learning sometimes presented difficulties for children. Despite this, they generally expected children to have a clear idea of what they were seeking and to complete activities at home where the consistency of support and access to resources was highly variable. Although at the beginning of the study it was difficult to assess the information skills support provided in class, only in one school was there a strong possibility that children would be expected to complete project work quite independently.

In terms of assessing resource-based learning products, across the schools teachers were fairly uniform in the emphasis given to drawing conclusions, asking questions and searching, integrating, examining and organising information. In general, as one might expect for 7 to 11 year olds, they gave most attention to asking questions and searching. However, there were large differences between schools concerning emphasis always or often placed on assessing fact finding and evaluating and deliberating on information. It is interesting that in three schools, there was more frequent emphasis on drawing conclusions than there was on evaluating and deliberating on information found.

The second study shed further light on teachers' understanding of the thinking involved in information problem solving. In the context of analysing planned curriculum activities for individual research projects, it was found that working one to one, staff could recognise, but not independently identify underlying information skills, even though we had been talking about the information problem solving process for a couple of weeks. This prompted a further workshop in which various models of the process were re-examined and pairs of staff analysed old work plans. The feed back was that this was a difficult task. There was also surprise that teachers had been expecting children to engage in so many aspects of information problem solving.

By the end of both studies, teachers reached similar conclusions about the need to explicitly teach information skills and to support the information problem solving process through questioning and modelling. They were also more aware of the need to evaluate resources thoroughly themselves and to help children build strategies for interacting with media rather than providing simple rules.

Information skills focus expected	**One**	**Two**	**Three**	**Four**
Fact finding	56%	55%	67%	36%
Asking questions and searching	78%	73%	89%	82%
Examining and organising	67%	46%	67%	64%
Evaluating and deliberating	**89%**	**46%**	**33%**	**55%**
Integrating information from two or more sources	33%	36%	44%	55%
Drawing conclusions	**67%**	**64%**	**56%**	**64%**
Conceptualizing	67%	64%	44%	55%

Table 1. Percentage of teachers in each school always or often focusing assessment on particular levels of thoughtful research (after Stripling and Pitts, 1988).

Connecting teachers' and children's thinking and expectations

In both studies, participation in workshop activities that provided information literacy challenges for adults similar to those experienced by their students acted as a reality check and encouraged adoption of the student's perspective. Recognition of the role of prior subject and information systems knowledge was a major issue here. It is apparently very difficult for educators to set aside their own knowledge in creating assignments and evaluating resources. The key was changing the focus from teaching to learning and attending to information skills application rather than subject matter alone. The link could then be made to children's performance and the teacher's responsibility to support learning.

Reading research literature was not enough to gain commitment to adopting an information literacy approach to teaching. Teachers needed to experience changes in children's learning for themselves! In the final evaluation, all workshop participants in the four school study commented on the value of systematic classroom observations and discussion in revealing children's information skills.

This effect was greater in the second study where teachers had themselves defined the research focus and carried out some of the data collection. Here teachers had greater purpose for information gathering – they were required to analyse findings and decide not only which issues they would then address, but what they would look for as evidence of future improvement. Mostly, findings confirmed previous research, but some broke new ground. Seeing the practical benefits of their own research was crucial to creating a robust form of professional development.

In the single school case study, there was also a greater effect on teaching in areas of the curriculum outside topic work or resource-based learning. For example, a new entrant teacher found her 5 year olds capable of thinking about information critically and asking appropriate questions to extend knowledge. This started in shared news, but quickly and naturally flowed into reading and maths activities. Another used surveys in her research to examine children's perspectives on cd rom use. This was the stimulus for children collecting and interpreting data from a survey they designed themselves, thus integrating adult and child led research with social studies and mathematics.

The teaching and learning interface

An earlier study had suggested that information problem solving would be an ideal vehicle for explicitly supporting the development of critical and reflective thinking (Moore, 1995). Both of the studies discussed here were predicated upon assumptions about learners taking responsibility for managing their own learning and the provision of appropriate support for the development of metacognition as an essential element of information problem solving.

However, comparison of the path of professional development in four typical elementary schools showed that each school faced different challenges in creating supportive learning environments. Not only did staff differ in willingness to reflect on practice, but the characteristics of the children demanded different responses. For example, in one school children often found that materials to support the curriculum related only poorly to their own experience and language difficulties meant that some would have to read the same paragraph many times to gain basic understanding. Consequently, teachers had to put more energy into building bridges between school and home experiences to activate prior knowledge. Some children seemed to need expressed permission to apply their existing knowledge and information skills needed breaking into smaller steps to be achievable. The result was that teachers felt challenged in covering the requisite number of topics in the curriculum. Connecting ideas and fields of knowledge through information problem solving was not a prime consideration. This contrasted strongly with other schools where children's experience was automatically applied to learning and staff could draw on that, making connections between fragments of information automatic to every discussion. Teachers in this case provided very different models of knowledge organisation and information problem solving.

These types of relationships are illustrated in Figure 1, which shows the interface between the child as a reflective learner, constraints surrounding the teacher, and the wider context of the school in relation to information literacy. The diamond on the right illustrates sets of variables contributing to students' understanding and self-management of learning situations (with information problem solving mediating between learning and assessment), while factors that educators co-ordinate in creating a supportive learning environment are on the left. The teacher's personal knowledge of the complexity of information problem solving and expectations for students' ability, influence learning activity and assessment design. They also influence the type of support offered to learners, but school-wide frameworks and the extent to which teaching staff work together constrain implementation.

Relationships among staff

In the four-school comparison, differences in group dynamics influenced the extent of information exchange and the way workshop activities were transferred to the classroom.

While all staff worked on the same aspect of information problem solving at the same time, even working in an open plan setting did not necessarily lead to collaboration on curriculum design. In addition, there was no apparent spread of professional development effects to other staff during the life of the project.

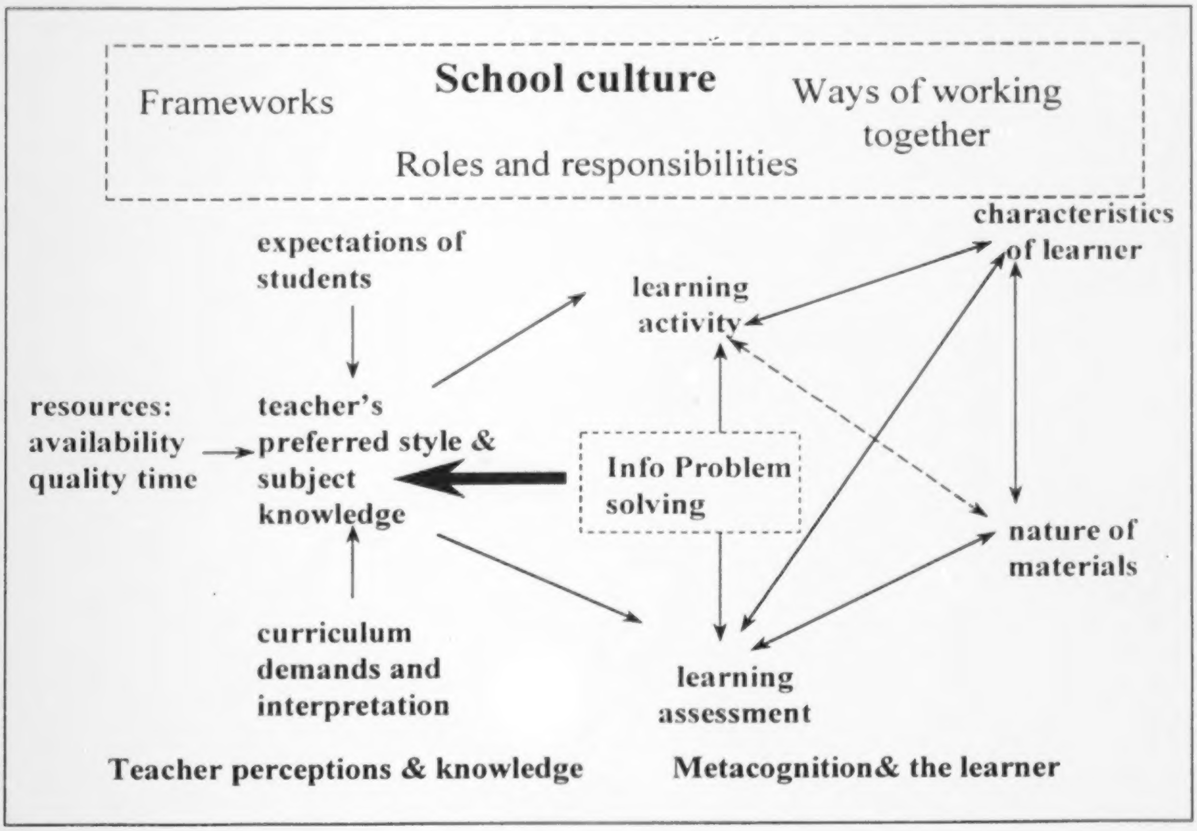
School culture
Frameworks
Ways of working together
Roles and responsibilities
expectations of students
resources: availability quality time
teacher's preferred style & subject knowledge
curriculum demands and interpretation
learning activity
Info Problem solving
learning assessment
characteristics of learner
nature of materials
Teacher perceptions & knowledge
Metacognition& the learner

Figure 1. Interface between the child as a reflective learner, teacher's perceptions and knowledge and the wider context of the school in relation to information problem solving

In the single school case study, the intention had been to work on a small number of projects with several teachers addressing the same issues under the guidance of a group of teachers acting as project co-ordinators. However, even those team teaching in open-plan settings chose to work on individual projects. The co-ordinators group met to keep an overview of the twelve staff projects and to gain an appreciation of research management, but while one co-ordinator called on another for research assistance, teachers did not. (One reason for this was that the school had not worked through a way of releasing staff from teaching so that co-ordinators could be available in school hours.)

Teachers did however meet with others examining similar information literacy topics and found themselves working outside usual curriculum and syndicate groupings. These appear to have prepared the ground for closer collaboration and knowledge sharing in the future. For example, plans were developed for each teacher to lead a professional development discussion based on their own research project. In addition, at least two teachers intended applying colleagues' insights and teaching methods to their own classes and to evaluate effects on children's learning. This is in contrast to the first study where information literacy practices had changed and were to be maintained in all schools, but participants did not spontaneously signal systematic evaluation or professional development for their colleagues.

Conclusions

The schools discussed above were highly similar in the profile initially accorded to information literacy. In all cases, individual teachers' classroom practice changed as a result of the initiatives, but wider support for library media programmes has yet to emerge. Indeed, only in one school did observations of children focus on a library activity of any kind. Given the level of available on-site support it is not surprising that school libraries were not seen as central to teaching and learning. Creating excellent school library media programmes is difficult in this context and alternative strategies are needed to promote information literacy and empower teachers as well as children.

Attention to the frameworks suggested by Hopkins (1996) will help staff co-ordinate library, information technology and curriculum developments. However, the nature of the community of learners and the resources available had a profound influence on the level of support teachers needed for promoting information literacy.

Professional development centred on workshops about teaching information skills followed by classroom observations was sufficient to effect change in schools where staff were already reflective practitioners with high expectations of children as thinkers. These teachers simply needed a catalyst for making external knowledge their own. In contrast, in schools where teachers were struggling to ensure children met basic curriculum objectives, there was less energy for reflection and support was needed for recognising the educational potential and practicality of information skills. The key to changing staff perceptions was observing changes in children's learning outcomes for themselves.

In the single school study, the focus was not on *teaching* about information problem solving, rather it was on supporting teachers as *learners*. Their experiences of research were continually discussed in terms of information problem solving and implications for supporting children in similar tasks. In this context professional development moved from being a peripheral activity, to being part of the central life of the school. This is perhaps a more robust model for development in schools where information literacy has not been an accepted goal. In addition, such developments are not as vulnerable to collapse if teaching staff leave, particularly if school frameworks formally include attention to information literacy.

To make the most of the intellectual capital now invested in that school, future information literacy initiatives need to be centred on tasks that cannot be completed without input from everyone. Each teacher has skills and experience others lack. One such task is the development of information technology and library development plans that have to begin, not with discussion of physical surroundings and resources, but with the intellectual activities in which teachers and children will engage.

Note

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University/School Library Collaborations to Integrate Information Technology into Resource-Based Learning Activities

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If the goal of teacher-librarians is to work with teachers to develop information literacy, then how do we model this collaboration for pre-service teachers during their teacher education program? This question was explored in a research study involving university researchers, teachers, and teacher-librarians in six elementary schools in Canada. Learning projects arose from collaborations among the pre-service teachers, classroom teachers, and teacher-librarian as they developed IT projects that were integrated into the pre-service practicum. Data were collected on the learning strategies children used and on the collaborative relationship established between the pre-service teachers and the teacher-librarian. This study tracked how pre-service teachers reacted to working with teacher-librarians. Results indicated these projects created authentic environments where pre-service teachers learned the role of the teacher-librarian and how the curriculum development process associated with resource-based learning develops through school library programs.

Introduction

Throughout North America, pre-service teacher education programs are struggling to adapt to a rapidly changing educational context (Driskell & Cobbin, 1997; Shapson, 1998) particularly in the area of integrating information technologies into their education courses and practicum experiences. At the Faculty of Education at the University of Prince Edward Island, we recently replaced our four-year undergraduate and one-year, post-degree programs with a new two-year, post-degree program with an enhanced and extended practicum and many newly with professional development who designed courses. In some of the traditional approaches to preparing new teachers, students would study various methods, practice them amongst themselves and then go into the school system to "practice" their skills in a teaching practicum. Starting in 1997, we were looking for ways to integrate into our program more authentic situations in which pre-service teachers could experience how curriculum emerged in classrooms and how teachers were provided en new curriculum was implemented. Like other programs, we were faced with pre-service teachers with high expectations that technology would play a large role in their development as new teachers (Duffield, 1997). In addition, we were faced with many pressures to increase the role of technology in both the way courses are taught and in the way pre-service teachers are expected to use information technologies in the planning, preparing and presenting of their lessons.

Both of these thrusts connected very well with the need to prepare new teachers to work with teacher-librarians and to have them graduate with an understanding of how resource-based learning develops through an integrated school library program. Since teacher-librarians play such a leadership role in the use of information technologies, it seemed a natural connection to have pre-service teachers work with teacher-librarians in the development of information technology projects that would model how information technology becomes integrated into learning outcomes associated with information literacy. It also created an ideal research environment to examine what pre-service teachers learned about the role of teacher-librarians and school libraries.

Background to the Study

This study was part of a major two-year project that examined effective ways to integrate information technologies into the elementary school curriculum. Throughout the study, *Teaching and Learning with Information Technologies* (TILT), experienced classroom teachers, teacher-librarians, and pre-service teachers developed curriculum projects that involved children in the use of Internet, CD-ROM packages, email and web-based learning environments. All projects were integrated into existing language arts, social studies and mathematics programs or involved information literacy skills/strategies in grades 2, 3, 4, and 5. All of the projects were designed to achieve learning outcomes from the Atlantic Provinces Education Foundation (APEF) Curriculum. The researchers and pre-service teachers from the University of Prince Edward Island collaborated with educators in several schools across Prince Edward Island and with curriculum consultants from the Department of Education. The projects were a response to the increasing pressure for classroom teachers and teacher-librarians to use more technology in their teaching, as well as the expectation that pre-service educators ensure that new teachers entering the school system are well-prepared to use information technology in a variety of ways.

We created project-based, collaborative learning situations (Driskell & Cobbin, 1997) in which new teachers and experienced teacher-librarians could work together to integrate various information technologies into authentic resource-based learning activities across the curriculum. Several examples of the projects include: 1) grade two students used C-D-ROM software to develop their patterning skills; 2) grade four students visited eight Internet sites and evaluated the benefits of each site; 3) grade five students used an electronic environment to collect and deposit information on their local community and communicated with other students in Iceland and Newfoundland; 4) grade three students used a CD-ROM package to collect information on animals; 5) grade five students used Internet sites to collect weather data for their local community; and 6) grade five students used word processing in the editing and revising of their poetry writing. The cycle of planning and preparing the projects, as well as the implementation and evaluation of the projects involved all partners and required a great deal of discussion and problem-solving along the way.

There were four faculty researchers involved in the TLIT project and each researcher focussed on one curriculum area: language arts, mathematics, social studies, and information literacy.

Although pre-service teachers and teacher-librarians were involved with projects in all areas, this article shares the results from the work done in the information literacy area and involves results from only two of the six schools that took part in the whole project..

Goals of the Study

Within the larger research project, there were many goals related to information technology. In the context of pre-service teachers working with teacher-librarians, these were the primary goals:

- to create authentic learning situations where pre-service teachers could work along side in-service teachers to develop applications of information technology in existing curriculum,
- to create a collaborative environment for exploring the issues around integrating information technology across the curriculum,
- to develop effective teaching strategies for using information technology across the curriculum,

Research Methods

As part of the whole *Teaching and Learning with Information Technology* project (TLIT), pre-service teachers met with teachers and teacher-librarians to design integrated activities that used information technologies. For this study, I was responsible for five pre-service teachers and together we worked with two teacher-librarians in two small elementary schools in Prince Edward Island. These schools had well-established school library programs and a full-time teacher-librarian. Teachers and the teacher-librarian met regularly to discuss curriculum and to establish resource-based learning activities that were part of the existing school curriculum and that involved children in projects in the school library. The university students were aligned with the teacher-librarians as part of the collaborative planning and teaching team and as someone who would take a leadership role in using information technology.

As the university researcher, I became part of the team to observe how the various educators were dealing with the pressure to use more IT in their programs, how they were making connections to their curriculum and how the pre-service teachers would work when in a collaborative working environment. I made notes during the planning of the projects, as well as keeping a reflective journal between meetings. I met with the teacher-librarians privately to monitor how the pre-service students were doing and generally fulfilled my role as faculty supervisor for students who were on a field practicum. I met with the pre-service teachers privately to help them with any questions or concerns they had and to give them information on how the collaborative planning process usually works. I generally modelled for them how teacher-librarians work with teachers to involve them in collaborative curriculum work.

In addition to the data-collection they were expected to do during the actual implementation of the IT projects with children, the pre-service teachers also keep research journals in which they were expected to keep notes during their planning sessions and to reflect on the collaborative process at times of their own choosing. These journals and my own journal were examined for common themes and issues and a set of interview questions was developed. Each pre-service teacher was interviewed at the end of the TLIT Project and the results of those interviews form the basis of the present analysis. The five pre-service teachers who were interviewed responded to several questions on their work on the TLIT Project and these three questions related directly to their work with the teacher-librarian: 1) what they learned about the curriculum planning process; 2) how they would use information technology in their own teaching; and 3) what they learned about the role of the teacher-librarian and school library programs.

Results of the Interviews

The interview data was reviewed for details on the three topics for discussion: the curriculum process, instructional uses of IT and working with the teacher-librarian. The questions generated a positive discussion among all of the pre-service teachers and several recurring themes became evident.

The Curriculum Process.

All five pre-service teachers felt that their work on the TLIT project was invaluable in their understanding of the curriculum process. They listed several important areas to be considered in curriculum implementation such as clear objectives, pre-planning and being well-prepared in advance. They had to be sure the technology was working, that the approach they wanted to take was well thought out and that they had considered all potential pitfalls before they proceeded. They felt the activities that they were involved with helped them learn what the prior knowledge the children have of using IT and that these children see using computers as an attractive and enjoyable activity. They also noted how the children need to be taught some basic navigational skills and to move beyond the "game" or "fun" attitude and really be given meaningful learning experiences. They had to explore alternative ways of making the technology available since there was a great deal of variance in the what IT was available and where they could access it. They also note dhow teachers and teacher-librarians are aiming to integrate the technology and not just have it as an add-on to their programs. They noticed how knowledgeable the teacher-librarians were about the information technologies and how they fit in to the overall curriculum.

Using IT in their Teaching.

This question of how the pre-service teachers felt they would use IT in their teaching careers generated a great deal of discussion. Most felt it was "a fact and reality of our future teaching" and that it would be used "in everything I do!" They recognize it as an essential part of how they will teach and how their students will learn. They suggested computers can "accommodate many learning skills and styles" and can make it easier for "dealing with multiple intelligences." They made several references to "using communication technologies to connect students and have them collaborate with peers." They predominately cited the technology as an "information resource" that is particularly important in "library research projects" and "as a learning tool to promote critical thinking" and "to teach students to be effective information managers." They were particularly impressed with how the teacher-librarians knew the technology so well and could use it effectively.

Working with the Teacher-Librarian.

All of the pre-service teachers were greatly impressed with the way teacher-librarians ran their school library programs. They were "amazed at how they keep all of the various aspects of their jobs going at once," and "how they want to work so closely with teachers." They expressed great interest in how "all children are welcome in the school library" and how "they can work at their own level in here." In one school, the teacher-librarian had just moved to that school and she was trying to build new relationships with a whole new staff and the pre-service teachers at her school expressed how impressed they were "with the professional way she approached teachers to get them involved in the library." From both schools they recognized how important the principal is and how "he comes into the library often to see what is going on."

The pre-service teachers stated how they "never knew how much teaching goes on in here" and how "the teacher-librarian really knows about technology." It impressed them that teacher-librarians "make such detailed plans and keep track of everything," and they were impressed with how they work with teachers to evaluate the students' work. They enjoyed the "the learning stations set-up" and how the projects "were more than just fill in the blanks or answering questions." They liked "all the different materials available for teaching," and they "liked working with children from different grades." They repeatedly expressed their great respect for what the teacher-librarians were trying to do.

Issues Facing New Teachers.

The number one issue these pre-service teachers cited was "the lack of information technology resources available to the average teacher." Resources, money and the 'limitations of funds in the schools" were recurring themes. They saw inequity of access to current technologies as a major issue and wondered how the system will "remain current with changes in usable technologies?" One pre-service teacher wondered if the school administrators and fellow teachers on staff will "support my efforts in using available technologies in meeting curriculum goals" and if they will be allowed "to work information technologies into curriculum where it has never been used before." Will they be able "to make it a daily tool?" Three mentioned how they felt other pre-service teachers don't know how a school library should work and they are missing what they had during their work with the TLIT Project. They also wondered if they went to other schools would they see teacher-librarians working in the same way as they experienced in these schools.

Two of the participants mentioned issues around security and censorship with questions about "what should be accessible on the Internet." Two were also worried if they will be able to stay current themselves and "keep up to date with software and skills."

Discussion

As a research team, we were cognizant of the limitations of an "intuitive analyses of what works" that Windschitl (1998) claims can limit research results, but we also worked closely as a collaborative team as suggested by John-Steiner, et al. (1999) to ensure "that shared views, construction of new knowledge, and joint work" were significant aspects of our collaboration. The discussion with pre-service teachers before, during and after the projects helped in this process and have provided us with several new understandings that will inform our future work in this area.

In a very real way, we were *modelling the teacher-as-researcher process* for our pre-service teachers. They reacted positively to working in a research environment where they established areas to examine, set up procedures for pursuing their questions, working with the children to complete the projects and then writing about what they observed. They felt they were "able to see the stages of the entire research process" and to see "how educational change can happen." This experience will stay with these pre-service teachers well into their careers and it helped them develop their reflective practice skills that are essential to sustain a life-long teaching career.

Just as importantly, the TLIT project was *an authentic learning environment* for all who were involved with it. It created an environment where we could see what the real problems were facing teachers and teacher-librarians as they attempt to integrate information technologies. In the words of one pre-service teacher, the advantage in working in this environment was "the opportunity to think about and see the potential for using information technologies in what I do and in what I teach." They could also see the many issues facing teacher-librarians who are trying to involve all teachers and their students in information literacy activities.

By mounting IT projects, the pre-service teachers came face-to-face with the types of technology available, with the curriculum into which they must try to integrate IT and with the variety of experiences students and teachers have had with IT. The pre-service teachers identified the availability of computer hardware and other technological resources as the main problem facing them as they take up new teaching positions. There appears to them to be inequity in the quantity and quantity of computer resources, where "some schools have many computers, while others are limited in what is available." They wonder "will there be resources available to me and my students?" or will the system help them in "keeping up to date with software and skills?"

These are the same issues all educators face and the pre-service teachers had many opportunities to explore innovative ways of using IT so that all students had access and opportunities to use it. Teaching and learning activities, such as learning stations in the school library and small group activities for using one computer in the classroom were all modelled for them. The TLIT project placed them in problem-solving situations where they had to find ways to hold to their principles for integrating IT, while trying to deal with the impediments to them such as technical failures, inequitable access and old equipment. In addition to issues around availability of technology, these pre-service teachers worked with two strong models of integrated school library programs and thus have a much better sense of what to expect when they are working in another school situation. Future projects will build on this authenticity and should be encouraged to spread across the pre-service program into other areas of curriculum implementation and pre-service development.

Related to the authentic nature of this project is how curriculum development is often something that pre-service students can learn about in lectures, but never really practice until they get into the school for a practicum or in their first job. In the TLIT project, they practiced many of *the components of the curriculum development process* and the ways teachers and teacher-librarians work with educational innovations to incorporate them into their repertoire as teachers. The pre-service teachers had to examine the existing curriculum and the new programs that have been implemented recently, as well as learning how information technology is integrated into learning outcomes. They had to learn about information literacy and how a school library program becomes integrated across the curriculum. They had to establish grouping arrangements, meaningful learning activities, as well as design lessons using IT. They worked with the curriculum process in dynamic and authentic situations with the support of the school-based teacher-librarians and the university researchers. They learned "it is important to have clear objectives," that "it takes a lot of planning" and that they "must maintain good communication." They learned "how to work information technologies into the curriculum", "how students use information and perform research", and "how to use learning stations and information resources." These are all important aspects of curriculum development and these pre-service teachers had a chance to see their plans come to fruition and to analyse their success. These are important skills even if they never become teacher-librarians; they will know how a school library program can help them as classroom teachers and how a teacher-librarian can support them and collaborate with them to make for more effective teaching and learning.

One of the real advantages of this type of project is *how pre-service teachers are empowered* as teachers. They are not simply learning about teaching; they are actively involved in the process of creating learning environments and in this case bringing about innovation. They were able to work along side the in-service educators and make real contributions to the educational programs in these schools. Throughout the TLIT project, we were inching towards a collaboration where the pre-service teacher could show leadership, energy and commitment to something new, while the sponsoring teachers and teacher-librarians were acting in their traditional mentoring roles by accepting the pre-service teachers into their classrooms and school libraries. Not all situations were equally successful, but we were successful in creating many of the conditions essential to the collaborative planning and teaching process. The pre-service teachers responded positively to being part of a team where they had input and a meaningful role to play in the development and implementation of the IT projects. They felt "able to mentor and collaborate with other teachers and administrators" and that they "had first-hand experience in a collaborative educational project."

Implications and Applications

Although the sample of pre-service teachers used in this study was small, there are at least early indications that setting up collaborative teams that include in-service teachers and teacher/librarians, pre-service teachers, university researchers and education consultants have great potential for affecting change in the way we introduce innovation to the system and how we prepare new teachers. The fact that these four educators came together to explore innovative uses for information technology was feat enough, while the results suggest we have harnessed our separate energies and focussed them on creating real change. This "change as collaborative inquiry approach" (Wagner, 1998) leads to several suggestions for future applications of this emerging model.

First of all, curriculum developers need to recognize pre-service teachers as an untapped resource for introducing educational innovation. They need to be involved as active participants in the change process associated with curriculum innovation and not limited to being perceived as one more target group consultants need to get to early and get them aboard. These pre-service teachers have demonstrated that they can take part as full partners in research projects, curriculum change initiatives and as part of collaborative planning and teaching projects. More importantly, it appears that what they learned from these projects has become part of the way they see themselves as educators. This could be the teaching experience that really creates beginning teachers with a better understanding of the role of teacher-librarians and school libraries. In the future, consultants could involve pre-service teachers in pilot projects, curriculum planning sessions and as workshop presenters and participants.

In a similar vein, curriculum consultants need to recognize the role action research plays in curriculum innovation and so try to have field-based research be part of any new initiatives they want to implement. This will provide them with authentic information on the impact their new program or curriculum change will have on teaching and learning. There are effective models available for implementing field-based research (Hemmeter et al., 1996) and when they are applied within the collaborative approach used in this study, there is a great potential for meaningful change. University educators also should see that placing pre-service teachers with teacher-librarians provides them with authentic learning experiences and teaches them a great deal about effective teaching strategies.

A second implication centres on the relationship between the pre-service teachers and the in-service teachers and teacher-librarians who offer to act as their sponsoring teachers during their school-based practicum. Pre-service teachers in this project acted as mentors to in-service teachers as they led the way with the use of information technology. They were very comfortable with using these technologies and they saw them as natural tools to use in their teaching. This meant the in-service teachers were being supported in their acceptance and application of IT, while the pre-service teachers were supported in their development of management and instructional skills. In the future, other projects could be set up around IT and also other areas of the curriculum, so that the natural curiosity and energy of new teachers can be harnessed and used to help motivate in-service teachers work with new innovations. For example, many of the constructivist approaches applied in pre-service programs require a great deal of collaborative learning. Pre-service teachers may want to use more cooperative learning in their teaching, but a classroom teacher may not feel like trying it. Together they could both learn by using a similar team approach, where the pre-service teacher could develop activities for using cooperative learning and the in-service teacher could support and facilitate their work with their children. Attaching the pre-service teacher to the teacher-librarian team could also help model for classroom teachers how the collaborative teaching approach found in school library programs really works. The pre-service teachers in this project thrived on this partnership and found the teacher-librarian really acted as a mentor for them.

Conclusion

Authentic learning environments are easy to identify, but harder to create. Means and Olson (1994) suggest that challenging tasks are the starting point for activities that are seen as worthwhile and meaningful and that heterogeneous and collaborative groups are at the heart of successful learning. From our work on the TLIT project, it is clear that these same principles hold when they are applied to an adult learning situation where educators are exploring the uses of IT for teaching and learning and particularly when working in the collaborative planning and teaching process. If we believe in authentic learning, collaboration and constructivist principles and, if we want to implement collaborative planning and teaching, then this project demonstrates that all educators must be involved in the process and that the change that the role of the teacher-librarian brings to how we teach and how children learn will not be effective if we do not use approaches like this.

If having a strong commitment to using information technologies (Hope, 1997) and to the role of the teacher-librarian in developing information literacy is essential to the success of students' use of technologies , then these pre-service teachers demonstrated they believe strongly in the use of information technology and that the experience they had with this TLIT project has given them the chance to develop some of the reflective teaching skills necessary to maintain their commitment and to realize their vision for using information technology. In addition, they have not only seen a teacher-librarian working in the collaborative planning and teaching process, they have been part of that process and have developed a deep understanding of how the school library program is essential to the integrated use of information technology and students' information literacy.

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Assessing Pre-service Teachers' Beliefs About the Role of the Library Media Specialist

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The revision of Information Power *(1998) focuses on building partnerships for greater student learning. While not a radical departure from the previous edition (1988), the recent document emphasizes both greater collaboration and leadership and increased involvement with the technologies of information and learning. This study set out to determine whether teacher education programs were preparing tomorrow's teachers to expect and accept the redefined role of the school library media specialist. It involved the development and the administration of a scale to assess pre-service teachers' beliefs about the role of the school library media specialist. The results of the pilot study reported here are preliminary but suggest that while pre-service teachers distinguish three distinct sets of functions they place more emphasis on those functions associated with information access and delivery than on those related to learning and teaching. Further, pre-service teachers do not appear to understand the role areas of learning/teaching and program administration.*

Introduction

The recent update of *Information Power* (1998) emphasizes three major areas of the library media specialist's role: learning and teaching, information access and delivery, and program administration. This restatement of the original roles of teacher, information specialist, and instructional consultant, is set in a context of collaboration, leadership, and technology—the unifying themes for partnerships in the information age. The new guidelines introduce the Information Literacy Standards for Student Learning as the foundation for effective library media programs. The Standards firmly establish the library media specialist as an essential partner in fostering student learning.

We asked ourselves whether and to what extent the envisioned roles of the library media specialist match the conception held by pre-service teachers. Do teachers in training share common ground with the drafters of *Information Power*? Are pre-service teachers' beliefs about the role of the library media specialist such that they would be accepting of the newly defined roles? Would their beliefs predispose them to work in partnership with library media specialists in their expanded role?

The research described in this paper sets out to explore pre-service teachers' beliefs about the library media specialist's role. Specifically, the goal of the study was to ascertain the degree of awareness that pre-service teachers have of the three major roles of the library media specialist as delineated in *Information Power: Building Partnerships for Learning*. Responses to this inquiry can help us determine whether teacher education programs are adequately addressing the role of the library media specialist and library media programs in the curriculum. Further, knowledge of pre-service teachers' beliefs can provide us with strategies for building relationships between the library media specialist and novice teachers.

Methodology

To assess pre-service teachers' beliefs about the role of the library media specialist, we undertook the development of a scale. We began by identifying items derived from the principles and goals detailed under each of the three major roles in *Information Power*. We conducted a content analysis of the principles and goals, a process that involved separating, categorizing, and coding individual concepts. By sorting and comparing the statements within each code category, we identified major themes and elements, combined similar items, and eliminated redundant ones. Further, we selected those items that described functions within a role, rather than those that stated a specific task which library media specialist performed or a behavior they exhibited. The process yielded a list of 45 preliminary items.

Our next step involved matching each item to one of the three role areas: learning and teaching, information access and delivery, and program administration. To confirm whether our categorization of items aligned with the role constructs, we collected judgmental validity evidence from graduate students in the Department of Instructional Technology at Utah State University (USA). Using conceptual definitions for each of the hypothesized constructs the students assigned each item to one of the three categories based on these definitions. We ran frequency analyses on the student responses to determine the degree of agreement among item assignments. As a result of the analysis, we collapsed two categories, refined the definitions, and reworded several items to better align them with the construct category. After the revision, we repeated the process with a separate group of undergraduate education majors. The subsequent analysis yielded a list of 43 items.

With confidence in the conceptual definitions and the operational ability of the items, we prepared the scale using a Likert response ranking, ranging from A, representing strongly disagree, to E, representing strongly agree. We then administered a pilot test of the scale to approximately 300 pre-service teachers enrolled in their junior or senior year at one of three teacher education programs. The institutions represented included a large eastern university, a mid-sized western university, and an eastern teacher education college. Subjects were asked to indicate the degree to which they agreed that each of the items represents a role that a school library media specialist should perform. A total of 262 responses were returned; 63, 177, and 22 from the participating institutions, respectively. The sample consisted predominantly of female students (91%) enrolled in their senior year (58.8%). The average age of subjects was 23, and their average self-reported GPA was 3.5.

Responses to the pilot scale were entered into a spreadsheet file using Microsoft Excel98 and subsequently imported into the statistical package SPSS™. Frequency distributions, means, and standard deviations were obtained for each of the items. To determine the reliability of the scale, an exploratory factor analysis was conducted for all scores. Prior to performing the calculations, data were screened for outliers as well as missing and miscoded data.

Results/Findings

Three factors emerged from the exploratory factor analysis. The factors identified by the pre-service teachers account for 49.5% of the variance and closely correspond to the three hypothesized categories. Based on the items that loaded on them, we labeled the resulting factors: curriculum and instruction, resource provision and guidance, and library media center (LMC) administration. With 20 items loading on it, resource provision and guidance was the factor with the highest reliability ($\alpha = .96$) and the highest mean score (4.41). The second highest factor with a mean of 4.21 and an alpha of .88 consisted of twelve items relating to curriculum and instruction. The third factor was comprised of nine items associated with library media center administration; the mean was 3.73 and $\alpha = .89$. Tables 1, 2, and 3 list the items that loaded on each of the three factors.

Table 1. Items Loading on Factor 1: Resource Provision and Guidance

	Mean	Standard Deviation
1. teach students how to conduct research	4.09	.91
5. provide information resources appropriate to students' information needs and learning tasks	4.58	.77
6. provide information resources that represent diverse points of view	4.38	.85
8. create an atmosphere that encourages use of the library media center	4.70	.75
9. match the information needs and interests of individual users with appropriate library resources	4.45	.79
10. integrate library media competencies (i.e., skills in using information and technology) into the curriculum and instructional activities	4.22	.87
12. develop a collection of information resources that supports instruction and individual interests	4.44	.79
13. evaluate the effectiveness of library media resources, services, and programs	4.50	.84
14. teach students information literacy concepts and skills (i.e., how to locate, evaluate, and use information)	4.45	.88
16. ensure access to a wide range of information and ideas	4.51	.83
18. provide access to information resources outside the library media center (e.g., through interlibrary loan, electronic networks, and resource sharing	4.31	.87
20. provide information resources to accommodate a wide range of abilities, learning styles, and information needs	4.38	.85
22. provide information resources and adaptive technologies for students with disabilities or specials needs	4.34	.89
23. promote the library media center, its programs and services as essential components of the school's instructional program	4.48	.83
24. plan for the on-going development of the library media program	4.49	.83
29. encourage students to read, view, and listen for enjoyment as well as for information	4.48	.87
33. teach ethical behaviors with respect to the use of information and technologies (e.g., compliance with copyright regulations and responsible use of the Internet)	4.34	.87
34. develop policies and procedures for use of the library media center and it materials	4.44	.85
38. organize library resources to facilitate access and use	4.54	.80
41. provide information resources in a wide range of formats (e.g., traditional as well as computerized resources)	4.41	.83

Table 2. Items Loading on Factor 2: Curriculum and Instruction

	Mean	Standard Deviation
3. facilitate teaching of the school's curriculum	3.46	1.01
7. participate in developing school curriculum	3.50	1.00
11. identify needs of the school community	3.74	.87
17. teach students how to be independent learners	3.71	1.06
19. plan instructional activities with teachers	3.83	.94
21. create instructional materials for teaching and learning	3.77	1.02
25. guide teachers in the effective design of instruction	3.41	1.06
26. support the concept of the intellectual freedom of information	3.78	.97
35. foster collaborative inquiry as well as individual inquiry	3.99	.90
39. help students develop life-long learning skills	4.04	1.07
40. oversee the allocation of financial resources	3.67	.99
42. help students develop critical thinking skills	3.86	1.02

Table 3. Items Loading on Factor 3: LMC Administration

	Mean	Standard Deviation
4. serve as a member of the school's administrative team	3.82	.98
15. communicate program needs, goals, and accomplishments with school administrators	4.13	.92
27. develop programs through the library media center that reflect the mission, goals, and objectives of the school	4.16	.93
28. provide leadership in using technology for teaching and learning	4.31	.83
30. coordinate the purchase of materials including hardware and software for the library media center	4.42	.88
31. help students develop media literacy skills (i.e., how to analyze mass media)	4.23	.91
32. communicate with parents and other members of the community about the library media center	4.07	.90
36. manage the use of the library media center facilities and resources	4.47	.87
37. collaborate with district personnel in providing library media services	4.30	.81

Only two of the 43 items did not load on any of the three factors; these were items 2, supervise the library media center staff, and 43, train the school staff in the use of information resources and technology. The overall scale reliability was high, reporting a Cronbach's alpha of .96 when subjected to principal axis factoring with equamax rotation.

On which of the 43 items was there the highest agreement? The pre-service teachers most strongly agreed that the library media specialist should create an atmosphere that encourages use of the library media center (79.8%), provide information resources appropriate to students' information needs and learning tasks (68.2%), and organize library resources to facilitate access and use (67.2%). Table 4 lists the ten items with which the subjects most strongly agreed. With two exceptions, these items are associated with Factor 1, resource provision and guidance.

Table 4. Items with Strongest Agreement

Item	Percent
8. create an atmosphere that encourages use of the library media center	79.8
5. provide information resources appropriate to students' information needs and learning tasks	68.2
38. organize library resources to facilitate access and use	67.2
29. encourage students to read, view, and listen for enjoyment as well as for information	65.3
13. evaluate the effectiveness of library media resources, services, and programs	64.8
16. ensure access to a wide range of information and ideas	64.1
36. manage the use of the library media center facilities and resources	
24. plan for the on-going development of the library media program	63.7
23. promote the library media center, its programs and services as essential components of the school's instructional program	63.4
14. teach students information literacy concepts and skills (i.e., how to locate, evaluate and use information)	63
30. coordinate the purchase of materials including hardware and software for the library media center	61.3
34. develop policies and procedures for use of the library media center and its materials	

The majority of subjects were in agreement with all of the items; there were no items on which the majority of subjects either disagreed or strongly disagreed. The largest percent of disagreement (20% combined disagree and strongly disagree) was in response to the statement that the library media specialist should guide teachers in the effective design of instruction. The lowest means occurred with items that loaded on Factor 2, dealing with learning and curriculum.

Conclusions

The results of the factor analysis conducted on the pilot administration of the scale validate it as a measure of pre-service teachers' beliefs about the role of the library media specialist. The factors that emerged align with the three major role areas outlined in *Information Power*. However, despite a close correspondence between the factors and the role areas, the distribution of items across the three factors differs somewhat from our categorization of items derived from *Information Power*. Pre-service teachers appear to see the role areas a little differently. For example, Factor 1 focuses on providing resources but also encompasses administrative functions associated with information access and with instruction and guidance in the use of resources. Factor 2 emphasizes functions relating to curriculum and facilitating instruction; there appears to be less involvement on the part of the library media specialist in directly teaching students and teachers in the use of resources and technology. Functions pre-service teachers associate with Factor 3 are, with one exception, administrative but the scope of the factor is limited. Subjects associated a number of clearly administrative functions such as planning and public relations with Factor 1. Subjects in the study do not appear to understand the role areas of learning/teaching and program administration.

Analysis of the individual items provides further evidence of this perception. The items on which subjects expressed strong agreement are primarily those that loaded on Factor 1, resource provision and guidance. Few items related to Factor 3, LMC administration, and none associated with Factor 2, curriculum and instruction, are among the first ten or even 20 items on which students indicated strong agreement. The items receiving the lowest ratings are those that deal with teaching and collaborating with teachers in developing curriculum and instruction.

What does this suggest about pre-service teachers' conception of the library media specialist role? According to the data, we conclude that the pre-service teachers closely identify the library media specialist with the more traditional "librarian" role. The resource manager and information provider functions are closely linked and key aspects in their perception of the library media specialist role. We are gratified to find an acknowledgement of the administrative functions. However, we are concerned that items we associate with the learning and teaching area and those that emerged as Factor 2, are poorly represented among the functions that the pre-service teachers believe are integral to the role of the library media specialist.

In summary, pre-service teachers distinguish three distinct sets of functions. Among the role areas, they place more emphasis on those associated with information access and delivery than on those related to learning and teaching. Given the subjects' responses to individual items, we conclude that they do not share the vision of the library media specialist as a collaborative partner and leader in instruction and technology espoused in *Information Power*.

Further development of the instrument will expand our understanding of pre-service teachers' beliefs as we administer the scale to larger sample and apply qualitative approaches to identify alternative role conceptions. Additional analysis will be conducted to identify correlations among individual items and comparisons among groups representing different teacher education programs and stages of academic preparation.

Writers of *Information Power* envisioned collaboration and leadership in instruction and technology as hallmarks of the library media specialist's role. Results of the pilot study of the pre-service teachers' belief scale suggest that in order to build partnerships for student learning, the education community should:

- widely disseminate *Information Power* and *The Information Literacy Standards for Student Learning* to the education community, especially to classroom teachers and teacher educators;
- raise awareness in teacher education courses of the broader role of the library media specialist;
- involve pre-service teachers in field experiences and student teaching with library media specialists who exemplify the principles of *Information Power*;
- model collaboration by partnering with library media educators in teacher education programs; and
- promote *The Information Literacy Standards for Student Learning* along with the core standards of other disciplines.

Notes

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The Role of the Principal in an Information Literate School Community

Findings from an International Research Project

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This paper reports the results of an international study of the principals' role in developing and supporting information literacy programs in Australia, Canada, Finland, France, Japan, Scotland, and South Korea. Principals and librarians in all countries except South Korea differed significantly on the amount of time they perceived the principal to spend on tasks related to the information literacy program. Principals and librarians in Australia, Finland, and Scotland agreed about the amount of time they thought the principal should spend on such tasks in the future. In Canada, Japan, and South Korea, however, there was a significant difference between the two groups. Overall mean scores on present and future perceptions suggest that in five of the six countries principals and librarians are well-aligned in their beliefs about the role of the principal; the exception was Scotland where school librarians are not qualified teachers. These and other findings should be useful to principals and librarians in schools throughout the world, as they struggle in difficult times to provide quality schooling and information services and to contribute to the development of literate and independent library users.

Introduction

This research had its origin in projects undertaken by the researchers in Canada and Australia. Lyn Hay and James Henri completed a qualitative study in Australia (Hay & Henri, 1995; Henri & Hay, 1996), based on work done in this area by Dianne Oberg and Linda LaRocque in Canada (LaRocque & Oberg, 1990, 1991; Oberg, 1996). The Canadian project involved five schools in Alberta; the Australian project was undertaken in six schools in New South Wales. The qualitative studies provided in-depth analyses of the ways that principals working within an information literate school community are able to support the librarian. The projects also identified the methods used by librarians to involve the principal in the development of effective library and information services. Having identified the factors of influence and support that exist between the principal and the librarian in schools, the researchers have undertaken a quantitative study to examine these factors across a broader range of schools and contexts.

The International Study

The international study, funded by IFLA and IASL, involved surveying both principals and librarians about principal support. The researchers organized a full day workshop at the 1997 IFLA conference at which four papers were given on the research related to the role of the principal (Dogg Hafsteinsdottir,1997; Henri & Hay, 1997; Moore, 1997; Oberg, 1997). In addition, a workshop was held for members of the International Research Reference Group (IRRG) representing the seven countries involved in this international study (see Table 1). The role of this group was to: (1) provide input and advice regarding the adaptation and translation of the quantitative and qualitative instruments for their country; and (2) plan and administer the procedures for data collection, analysis, and reporting of findings for their country.

Table 1. International Research Reference Group

Australia	James Henri	Senior Lecturer
	Lyn Hay	Lecturer, School of Information Studies, Charles Sturt University, Wagga Wagga
Canada	***Dianne Oberg***	Associate Professor, School of Library and Information Studies, University of Alberta, Edmonton
Finland	Liisa Niinikangas	*Information Specialist and Partner, Lighthouse Consulting,* Tampere
France	Colette Charrier	President of FADBEN and Teacher-librarian, Lycee Guez de Balzac, Angouleme
Japan	Setsuko Koga	Professor, Department of Education, Aoyama Gakuin University, Shibuyaku
Scotland	James Herring	Head of School (Acting), Department of Communication and Information Studies, Queen Margaret College, Aberdeen
South Korea	Yoon Ok Han	Professor, Department of Library and Information Science, Kyonggi do University, Suwon-City

Research Methodology

Two model questionnaire sets—one for principals and one for librarians—were developed and tested in Australia. The three instruments in each of the questionnaire sets included both closed-choice and open-ended questions.

Instrument 1 to identified demographic variables for each of the country samples including the characteristics of the principals and librarians and the characteristics of individual schools. Principal and librarian respondents provided their own personal and professional details. In addition, the principals provided some whole school data, while the librarians provided specific library data. In this way, the researchers reduced the data input burden for participants and avoided duplication of data.

Instrument 2 was identified the level of principal support for the library program and the librarian. Both principals and librarians answered the same 50 questions (31 perception factors and 19 belief factors), using 5-point rating scales.

In Instrument 3, both principals and librarians responded to the same nine open-ended questions, related to the strengths and challenges of the library, the contributions of librarians to teaching and learning, the nature of information literacy, barriers to integration of information skills, the promotion of the library, and the respondents' roles in developing and supporting an information literate school community. Librarians answered two extra questions related to ways they used to maintain their credibility and ways that their principals could provide them with additional support.

Other papers (Hay, Henri & Oberg,1999; Oberg, Hay & Henri, in press) provide more detail in the background and on the design and administration of this international study. Readers should note that the terminology used for principals and librarians in schools varies considerably across the seven countries involved. Except in the case of direct quotes or where clarity of meaning requires, this paper uses the terms "principal," "librarian," and "library."

Findings from the International Study

This section of the paper includes highlights with examples from the findings for individual countries and with examples from the findings of the cross-country comparative analysis. A report homepage including data analysis reports and papers on initial research findings from the IRRG countries is available at <http://farrer.riv.csu.edu.au/principal/survey/report.html>. The researchers in each country selected the survey participants in the way most appropriate to their local context. There was no attempt at a country-wide survey. In several cases, there were not teacher-librarians in many of the schools in the country or in the schools in the regions that could be selected for the study.

In Australia the study was conducted within the Australian Capital Territory (ACT), a relatively homogeneous socio-political area with a population of approximately 310, 000. It included all schools within the ACT—both public and Catholic systems—that employed both a full time principal and a teacher librarian. There were 191 public schools (with K-6, 7-10, and 11-12 schools) and 55 Catholic schools (with K-6 and 7-12 schools) surveyed.

In Canada, the study was conducted in the elementary and secondary schools of the province of Alberta in western Canada. Not all schools in Alberta have teacher-librarians and no school district in the province is large enough to have 200 schools with teacher-librarians. The sample for this study consisted of 252 schools, scattered across the province, with a teacher-librarian assigned at least one-half time to the school library program.

In Finland the study was conducted in 86 upper secondary schools in the south of the country. The Helsinki region (including Helsinki, Espoo, Vantaa, and Kauniainen), the only metropolitan area in Finland with a population of more than one million, was the target area of the research. Two towns to the north of Helsinki, Tampere (population of 180,000) and Lahti (population of 70,000), were also included. Lahti is a town with experimental mixed upper secondary and vocational schools and is well known for its school library development.

In Scotland, virtually all state secondary schools (those with students aged 11-18) have professional librarians who are referred to as "school librarians". This project included only state secondary schools since primary schools in Scotland do not have school librarians and some schools in the private sector do not have qualified librarians. Two hundred schools (50% of all Scottish secondary schools), with an equal balance of urban and rural schools, received the questionnaire.

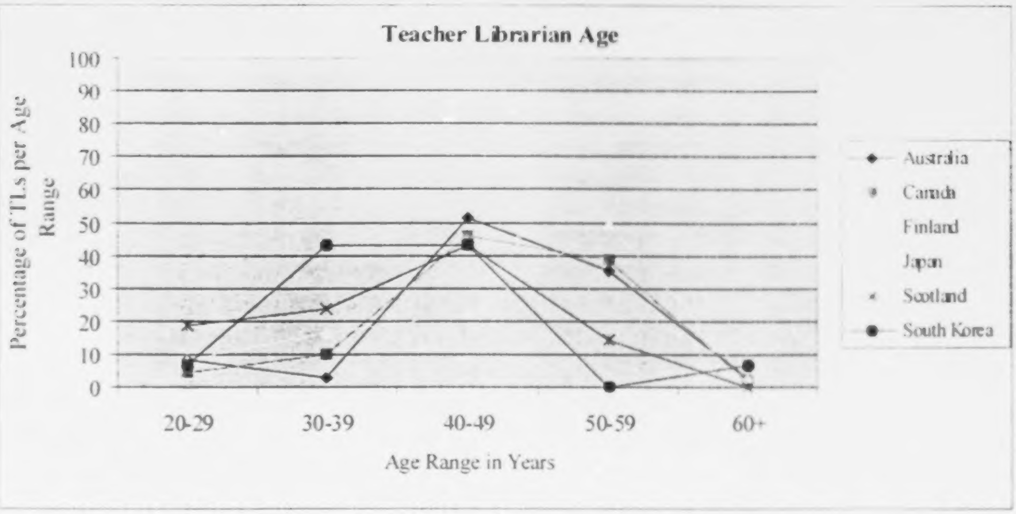
In Japan the study was conducted in 40 high schools serving students aged 15-18 in Tokyo, an urban context, and in 60 primary and junior high schools serving students aged 6-14 in northern and central Japan, a rather rural area.

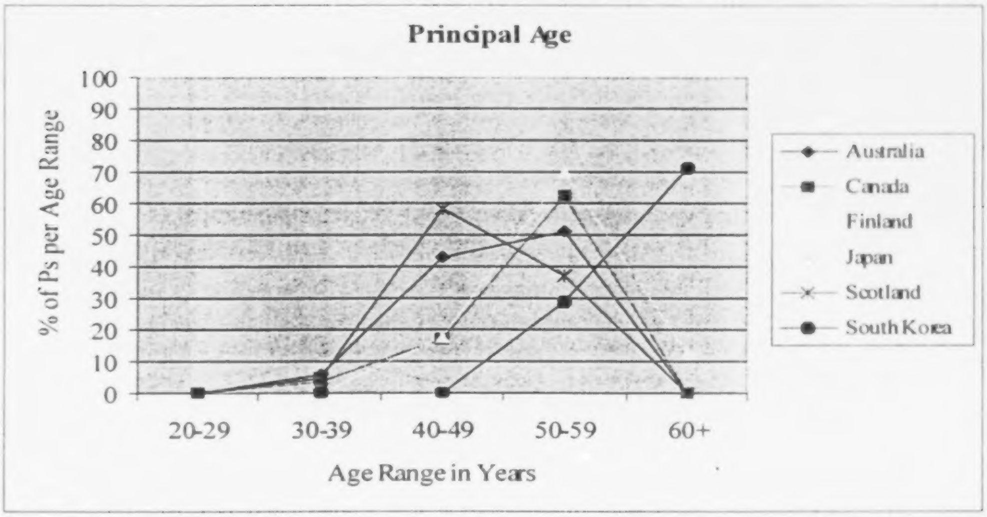
In South Korea the study was conducted across the 11 high school districts of Seoul. Random sampling to select research participants was not possible because all high schools in Seoul do not have teacher-librarians. Thus, the 141 high schools in Seoul that have teacher-librarians were selected for the study. In all of Korea there are 252 teacher-librarians and 175 of them are in high schools.

In France the study was conducted in two different educational regions, Grenoble and Nice. The researchers contacted one in three of the schools in the two regions and a total of 295 secondary schools—colleges serving students aged 11-15 and lycees serving students aged 15-18—received the questionnaire. The schools were located in different geographical areas: urban, rural, remote, mountainous, and seaside. The researchers in France completed their own data analysis and reported overall findings at the 1998 IFLA conference. However, the data from that study is not yet available in English and therefore could not be included in this paper.

Sample Findings from Instrument 1

Gender and age were two significant differences evident in the data from Instrument 1. Across all of the countries in the study, most principals were male and most librarians were female. This gender difference was significant for all of the countries in the study, even though the actual gender percentages varied from country to country. The percentages ranged from 57% in Australia to 88% in Japan for male principals and from 74% in France to 100% in Australia for female librarians. Most principals were older than most librarians. This age difference was also significant for all of the countries. Most principals were in their fifties while most librarians were in their forties. The exceptions were in South Korea where most principals were over 60, in Scotland where most principals were in their forties, and in Finland where most librarians were in their fifties.





Sample Findings from Instrument 2 Data

Overall Mean Scores for Perceptions and Beliefs

In order to get an overall comparison of the data across the countries and to test the correlations between the overall responses of librarians and principals in those countries, overall mean scores were calculated for Present Perceptions, Future Perceptions, and Beliefs for the librarians and the principals in each country. The overall mean scores were obtained by adding together the means of the questions and statements using the 5-point rating scales for Part A: Perception Factors (0=no comment, 1=none, 2=a little, 3=some, 4=a lot), and Part B: Belief Factors (0=no comment, 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree). Table 2 reports the overall means and p-values for comparisons.

Table 2. Overall Mean Scores, Present and Future Perceptions

	AU	CA	FI	JP	KR	SC
Present						
Librarian - Mean	88.71	95.75	66.00	71.72	73.89	73.83
Principal - Mean	103.03	107.14	77.88	84.07	81.76	87.07
p-value	.001	.003	.008	.001	.038	.004
Future						
Librarian - Mean	104.29	96.85	85.19	86.99	82.70	94.67
Principal - Mean	108.80	111.83	85.48	103.49	96.95	98.59
p-value	.254	.003	.956	.000	.001	.430
Beliefs						
Librarian - Mean	62.55	64.48	41.31	55.97	56.68	56.07
Principal - Mean	60.60	64.29	44.83	60.04	54.53	50.64
p-value	.154	.890	.169	.019	.208	.001

Based on the above overall mean scores for Present Perceptions, principals and librarians in all countries but South Korea differed significantly on the amount of time they perceived the principal to spend on tasks. The four main tasks with a significant amount of disagreement included:

- advocating and facilitating the development of an information literate school community
- demonstrating support for collaboration between the teacher-librarian and teaching staff
- ensuring that the teacher-librarian has an appropriate allocation of support staff
- allocating adequate, flexible time for the teacher-librarian to administer the school library.

However, in all countries, principals viewed themselves as spending more time or slightly more time on tasks than did the librarians.

According to the overall mean scores for Future Perceptions, principals and librarians in Australia, Finland, and Scotland were aligned (no significant difference) in regards to the amount of time they thought the principal should spend on tasks in the future. In Canada, Japan, and South Korea, however, there were significant differences between the two groups; the principals believed they should spend more time on the tasks in the future than did the librarians. For example, in Canada principals and librarians differed significantly on 22% of the tasks, in South

Korea, on 42% of the tasks, and in Japan, on 63% of the tasks. The following tasks were common to these three countries where the principal and librarian differed significantly:

- advocating and facilitating the development of an information literate school community
- informing new staff about the importance of collaborating with the teacher-librarian
- encouraging teachers to incorporate the learning and use of a range of information skills into their teaching programs and to assess process skills as well as content.

For each of these tasks librarians thought that their principal could give "a little – some" more attention to these tasks, whereas the principals felt they should give "a lot" more attention to these tasks. This suggests that the librarians in Canada, South Korea, and Japan have relatively low expectations regarding the information literacy advocacy role of the principal in the school.

According to the overall mean scores for Beliefs, principals and librarians in five of the six countries are well-aligned in their beliefs. The exception is Scotland where school librarians are not qualified teachers. This finding is of particular interest to the school library profession in the United Kingdom, as James Herring (1998, pp. 3-4), the Scotland IRRG member observes:

The school librarians and headteachers differed in that

- *Headteachers agreed that school librarians should have dual qualifications but school librarians did not agree*
- *Headteachers believed that cooperative planning and teaching should take place in the library and in the classroom*
- *Headteachers did not agree that the school librarian should be an IT leader in the school.*

These disagreements are surprising to this author and it would be interesting to see if the same results occurred from a larger response. If it is true that headteachers favour dual qualifications for Scottish school librarians, then this would raise an issue that has lain dormant in the UK for a number of years. The school librarians' disagreement on the issue of cooperative planning and teaching in the library and the classroom is surprising and, if this reflects a wide held belief, is worrying. School librarians are encouraged to plan cooperatively with teachers and not just with regard to the library. Also, if headteachers **do** believe that school librarians should not be IT leaders in the school, then school librarians need to make headteachers more aware of their IT skills.

Overall Task Priorities for Principals

The researchers next looked at the means for each of the questions related to tasks that the principals might carry out in support of the development of an information literate school community (Questions 1-31). Both principals and librarians rated each of the tasks in terms of the time/attention that the principal was giving the task at present and should give the task in future. Table 3 provides a cross-country comparison of librarian and principal Present versus Future Perceptions based on T-tests results. The letter 'M' identifies those tasks requiring significantly more attention by principals in future.

Table 3 shows considerable alignment between principals and librarians in both Canada and Japan. However, this alignment occurred at opposite ends of the attention spectrum. While there was overall consensus in Canada that principals *did not* need to focus more attention on the majority of tasks (except for two items, Q.12 and 31), principals and librarians in Japan agreed that principals *did* need to spend more time/attention on nearly two-thirds of the tasks (20 out of 31 tasks). There was only one task that both respondent groups in Japan agreed *did not* require further attention – Q.18 dealing with principal visits to the library to observe the work of the librarian.

In both Japan and South Korea, the principals identified many more tasks that they felt required more of their attention than those identified by the librarians. One possible cause of this high level of Future attention might be that the process of completing these survey instruments acted as an awareness-raising exercise for the principals as to the potential support they could give their librarian. In Australia, respondent groups were aligned on 68% of the tasks; however, seven of the ten remaining tasks were identified by the librarian as requiring more principal attention. This suggests that Australian librarians have higher expectations of principal support than Australian principals do. The top five items identified as requiring significantly more principal attention across all countries included:

- informs new teaching staff about the importance of collaborating with the librarian
- encourages the teaching staff to invest time in cooperatively planning and teaching with the librarian
- actively seeks outside school funding possibilities that can be used to supplement the library budget
- seeks feedback from staff about their impressions of the quality of library services
- works with the librarian to develop the librarian's personal professional development plan

Table 3. Activities Identified as Requiring Significantly More Attention

		Canada		Australia		Finland		Scot
No.	**Question**	**TL**	**PR**	**TL**	**PR**	**TL**	**PR**	**TL**
1	Facilitate development of ILSC					M		M
2	Ensure information literacy in school plan			M		M		M
3	Facilitate professional development (PD) of staff							
4	Advocate TL role in school curriculum					M		
5	Support collaboration between TL & staff					M		
6	Ensure SLRC reflects school goals				M	M		
7	Ensure appropriate allocation of support staff							M
8	Allocate adequate, flexible time for TL							
9	Encourage staff involvement in development of SLRC					M		M
10	Encourage staff invest time to CPPT with TL			M		M	M	M
11	Facilitate staff PD in understanding & use of IT							M
12	Inform new staff re importance of collaboration with TL		M	M	M	M	M	M
13	Support currency/relevancy of SLRC collection					M		
14	Encourage staff debate re information policy			M	M	M		M
15	Ensure significant funding allocated to SLRC budget					M		
16	Seek outside funding to supplement SLRC budget			M		M	M	M
17	Engage in regular/timely communication with TL							M
18	Visit SLRC to observe work of TL					M		
19	Encourage TL to debate/justify current practice				M			
20	Ask questions of TL re teaching & learning							
21	Rely on TL to keep PR abreast of developments re TL role			M				
22	Seek advice from TL re whole school information management			M				M
23	Encourage TL to take risks							
24	Encourage staff to use wide range of resources in teaching				M			M
25	Encourage TL leadership in development of info skills continuum							M
26	Work with TL to develop his/her personal PD plan					M	M	M
27	Advocate TL as member of key schoolwide committees							
28	Encourage information skill integration and assessment by staff					M		
29	Provide time release & funding for TL's ongoing PD			M		M	M	
30	If TL not on key committee, PR ensures SLRC needs addressed			M		M		M
31	Seeks staff feedback re quality of SLRC services	M		M	M	M		M

Sample Findings from Instrument 3

This section of the paper presents samples of the findings from Instrument 3 based on the studies conducted in Canada, Australia, Scotland, South Korea, and Finland. The Japan study did not include Instrument 3. As well, not all participants who responded to Instrument 1 and 2 completed Instrument 3 and not all those who completed Instrument 3 responded to all of the questions in that instrument. For example, for Canada, the responses of 43-47 of the 59 librarians and 18-31 of the 40 principals who participated in the study provided the themes for each of the open-ended questions from Instrument 3. However, approximately the same proportion (about 75%) of the librarian respondents completed the open-ended questions as did the principal respondents.

The researchers analyzed responses to the open-ended questions on Instrument 3 through a process of reading and rereading responses, noting the content of responses, identifying themes or categories according to the content, and then grouping and re-grouping the responses within the themes or categories. This interpretive process began with reading all the responses to get an overall sense of the data, and then analyzing each of the open-ended questions. This same content-analysis approach provided data for the cross country comparisons.

All of the five countries responding to Instrument 3 reported that two key strengths of the library were an emphasis on supporting staff and students in teaching and learning and the provision of resources and equipment. In all but South Korea, there were frequent mentions of trained and qualified staff as a key strength. In Canada and Finland, the library as an environment that was open, inviting, well-organized, and connected to other libraries was also seen as important.

Funding for school libraries was one of the challenges that was high on the list for all five countries. In some countries this reflected the low levels of funding to education as a whole; in others low salaries for library staff or competition from IT for a piece of the budget pie constituted the challenge. In all but South Korea IT represented an important challenge in terms of the need for constant upgrading of technology and in terms of the demands for staff training and for user education. In Canada, Scotland, and Finland, a key challenge was support for the library from school administrators and from teachers.

Participahts in all of the five countries mentioned the provision and organization of information and resources as one of the critical functions of librarians. All but South Korea identified providing in-service training for and cooperative planning and teaching as the other two critical contributions that librarians made to the teaching and learning in schools. Principals and librarians in Canada and Australia differed in the emphasis they placed on these two functions: principals tended to focus on the librarians' role in professional development, in enabling things to happen, while librarians tended to focus on the frontline responsibilities of planning, teaching, and evaluating learning as equal partners with other teachers. In Scotland and Australia, the role of the librarian in IT, both IT management and IT user education, was also very critical.

When asked about the effect of the library being closed for more than two weeks, participants in all countries agreed that there would be losses in access to resources and in the teaching of information skills. They suggested that instructional strategies might become less varied and less student-centered and that teachers might rely more on the textbook approach.

The next question asked about the impact of the librarian being absent for more than two weeks. Participants in three out of four of the countries (no responses were available from South Korea for this and the next question) agreed that there would be serious declines in the instructional program related to information skills. The majority of the participants from Finland suggested that there would be little impact on teaching and learning. In order to ensure access to the library when the librarian was absent, participants in Canada and Australia reported that there would be efforts made in some schools to hire a replacement with at least teacher qualifications but generally in Scotland and Finland there would be no such efforts.

When asked to identify the strongest element in the definition of information literacy, participants from all five countries agreed it was the ability to access information from a variety of sources. Principals and librarians in South Korea and Scotland and principals in Australia made special mention of the ability to access information from electronic sources. In all but South Korea there was some recognition of the process approach to information access and use but only in Australia was a specific process model mentioned with any frequency.

Participants in all five countries acknowledged that teachers' attitudes and beliefs constituted one of the major barriers to the integration of information skills across the curriculum. Time available for teachers and librarians to work together was seen a barrier by principals and librarians in Australia, Scotland and Finland and by librarians in Canada. Lack of "top-down support"—limitations in the principal's understanding and leadership and lack of a school information skills policy or curriculum--was seen as a barrier by librarians in all but Finland. Educational practices such as compulsory courses with rigid content requirements, university entrance examinations, and government testing programs were seen as barriers by librarians in South Korea and Canada and by principals in Finland. Funding was seen as a barrier by principals in South Korea, Canada and Scotland.

Looking Forward

This paper has begun to explore the richness of the data and has identified some approaches to a comparative analysis of the findings across the participating nations. The comparative analysis has, in turn, identified some common concerns, priorities, and beliefs of principals and librarians across a diverse range of educational contexts. This is where individual countries could learn from each other regarding programs and strategies that effectively support the development of information literacy in schools. That process has begun, as the following comments from researchers in participating countries illustrate.

> *[In South Korea] the principals believed they spend some time and should spend more time on tasks for an information literate school community in the future .... However, the teacher-librarians respond that their principals have no concern for the role of the teacher-librarian in the instructional program, and their principals do not have interest in seeking collaboration of the teacher-librarian with respect to issues of whole school information management. Already the facts have been revealed that the principal's understanding and advocating of the school library is very important for the development of an information literate school community. The Korean principals perceived that the*

> *attainment of information literacy is part of the school plan; however, their basic understanding of the school library is not sufficient.* (Han, 1998, p. 8)

> *Strategies for improving cooperation between school librarians and headteachers in relation to the development of information skills in schools should be developed and disseminated to* ***both*** *headteachers and school librarians. A follow up study [in Scotland], either to repeat the questionnaire exercise for those who did not respond or to choose a sample of school librarians and headteachers for interview, should be considered. ... This study is a valuable contribution to research in the school library/information skills area and has the potential to be of value to school librarians and headteachers in that it highlights the importance of information skills development and the key role which school librarians can play in this area.* (Herring, 1998, p. 4)

> *Principals and school librarians should be equal partners in a shared process. The earlier studies ... have shown that principal's support is vital to the well-being and development of the school library. The school librarian should also bear her/his part of the challenge of the educational reform. Above all, the educational policy and the socio-economic factors within each country establish possibilities for school libraries. This research gave some hints for developing Finnish school libraries, whether in collaboration with public libraries or inside schools as the school's learning resource centers. The results of the research may not be valid for a small amount of the participating schools, but they can and need to be used for the benefit of Finnish learners and teachers.* (Niinikangas, 1998, p. 13)

The Australian findings demonstrate that there is a significant affinity between principals and teacher librarians with respect to information literacy issues. This will allow a concentration on those issues that are seen as contentious and will facilitate the development of a short instrument that could be used to generate data on these key issues. (Henri, 1998, p. 6)

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Part 5:

Powerful technologies

The Changing Powers of Readers in a Time of New Technology

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Today's young people are used to moving in a world of multiple media and formats; they take the ability to move from one platform to another completely for granted. A qualitative study enlisted a small number of students in fifth and eighth grades (all with a background of domestic computer ownership and use) for intensive work with texts in different media. This report on part of that study demonstrates that those who have grown up with domestic access to video, computers, and the Internet are often relatively neutral when it comes to platform, preferring to judge texts by issues of personal salience and fluency of access.

Introduction

> There are three things that have revolutionized academic life in the last twenty years, though very few people have woken up to the fact: jet travel, direct-dialling telephones and the Xerox machine. – *Professor Morris Zapp* (Lodge, 1984, p.43)

Morris Zapp, speaking in David Lodge's *Small World: An Academic Romance*, describes a revolution that many of us will remember. Lodge's novel, after all, was published as recently as 1984 and set in 1979 – hardly remote history. Yet Morris Zapp's revolution seems in retrospect to be both short-lived and remarkably cumbersome. Seen from the vantage point of a mere fifteen years later, it is startling to see Lodge's academics, presumably on the front line of communicating information, yet still dealing with the material movement of ideas. In our own era of cut-and-paste, downloaded documents, and email attachments, their reliance on actual transport, real-time communication, and ever-increasing stacks of paper looks remarkably laborious.

1984, the year of *Small World*, also marked the birth of babies who are now fifteen years old. In the West, many of these young people have grown up in a world where information has lost its dependence on real time, real movement, and real paper. They may take a historical interest in Morris Zapp's version of revolution, but what they truly take for granted is instant access and a broad range of media and technologies. Adults, of course, also know about the technological developments but may find it more difficult to comprehend the impact of the *taking for granted* part of this description. This paper explores this issue.

It is an exciting time to be interested in broad questions of literacy. Even a definition of what we mean today when we use the word "reading" is fluid; does it include issues of visual literacy, media literacy, computer literacy, consumer literacy? Even if we define reading strictly as the processing of print, there is no question that what young people learn about approaching print is affected by what they know about texts in other media. Children who have watched many hours of television have certain expectations about the shaping of a story; children who gain a great deal of their information online or from CD-ROM encyclopedias are influenced in how they learn to establish what is salient to their search by skimming and scanning.

Only by standing back a little can we gauge the scale of contemporary change. There was a time long ago when, for large numbers of people, print offered the only real and regular entrance point to somebody else's imagined world. Drama was live; it took place in the theatre or on the village green. It was also correspondingly rare, compared to the dozens of hours now available on television every single day.

Raymond Williams draws our attention to the impact of media changes on our perceptions of drama:

> It is in our own century, in cinema, in radio and in television, that the audience for drama has gone through a qualitative change. I mean not only that *Battleship Potemkin* and *Stagecoach* have been seen by hundreds of millions of people, in many places and over a continuing period, nor only that a play by Ibsen or O'Neill is now seen simultaneously by ten to twenty million people on television. This, though the figures are enormous, is still an understandable extension. It means that for the first time a majority of the population has regular and constant access to drama, beyond occasion or season. But what is really new – so new I think that it is difficult to see its significance – is that it is not just a matter of audiences for particular plays. It is that drama, in quite new ways, is built into the rhythms of everyday life. On television alone it is normal for viewers – the substantial majority of the population – to see anything up to three hours of drama, of course drama of several different kinds, a day. And not just one day; almost every day. This is part of what I mean by a dramatized society. In earlier periods drama was important at a festival, in a season, or as a conscious journey to a theatre; from honouring Dionysis or Christ to taking in a show. What we now have is drama as habitual experience: more in a week, in many cases, than most human beings would previously have seen in a lifetime. (1983, p.12)

In this past era, other forms of mediated text were very rare or nonexistent. So print carried the imaginations of millions into far-flung realms - and also carried the can for the mind-rot that set in as a consequence! We may be a bit inclined to look back on a golden age of print, but it seems clear that people in the past saw as many problems with too much print fiction as they do nowadays with violent video games. Catherine Sheldrick Ross, writing about series books, quotes the chief librarian of the Boy Scouts of America who, in 1914, complained as follows about dime novels:

> The fact is that the harm done [by these cheap books] is incalculable. I wish I could label each one of these books: "Explosive! Guaranteed to Blow Your Boy's Brains Out." . . . [A]s some boys read such books, their imaginations are literally "blown out," and they go into life as terribly crippled as though by some material explosion they had lost a hand or foot. (quoted in Ross, 1995, p.203)

The tone of the complaint is surprisingly familiar but we are not used to hearing such strictures applied to print works; this kind of vocabulary is now reserved for movies and video games.

Nowadays, of course, young people in the West at least can enter imaginary worlds through a variety of portals: print, television, video, computer game, movie, audio text, interactive website (multi-user dungeons and so forth). It is now an unusual child who sticks completely to one medium alone. Our understanding of how literacy works for today's young people will be broader and more useful if we take account of how they accommodate and make sense of texts in different formats.

Access to media and technology is expanding rapidly, especially in North America, though it is a long way from universal. According to Nua's ongoing survey of online numbers worldwide, as of June 1999 102.03 million people, both adults and children, in Canada and the United States have accessed the Internet at least once during the three months prior to being surveyed. The world figure for the same date was 179 million. (<http://www.nua.ie/surveys/how_many_online/index.html>, June 25, 1999) Another survey, based on questionnaires mailed to 50,000 homes in the United States, found that, by the end of 1998, 50.3% of American homes had at least one computer. (Half of U.S. households, C5) Nua's estimates for the future are also startling: they suggest that 13.7 under-eighteen-year-olds in North America are expected to be online by 2001, a number that will "surge" to 36.9 million by 2005. Not surprisingly, the North American total stands out as a disproportionate fraction of the estimated 77 million youths worldwide who are expected to be online by the year 2005. (<http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905354860&rel=true>, June 29, 1999)

In North America, ownership of television sets is very close to 100% and all indications are that ownership of at least one VCR is moving towards 90% of households. Radio is similarly ubiquitous. CD-players, tape recorders, and Walkmans are commonplace.

Research Questions

Thus it really makes sense to talk about reading in expanded terms that take account of broad-based access to many different media. Very few people indeed come to print texts without a vast background of exposure to texts in many other media. Understanding the consequences of this phenomenon raises a number of interesting questions.

- What are the consequences of multimedia exposure and experience for readers' tacit understandings of how texts work?
- What repertoires of strategies and behaviours help people to process story and information in different media?

- How does experience in different media and platforms affect people's strategic approaches to texts in different formats?
- What individual quirks or patterns of response, if any, manifest themselves across media boundaries?

A longitudinal study of a small number of young people who were in fifth, eighth, and eleventh grades when the work began was the basis for an exploration of these questions. A total of nineteen students participated in all or part of the project, which lasted for about twenty months. This report describes part of the first section of that study, namely the responses of some of these participants in fifth and eighth grades to the openings of fifteen texts in three different media. Their reactions give some glimpses of a new textual world.

Methodology

The researcher worked with a small number of school students in fifth, eighth and eleventh grades, monitoring their responses to texts in print, video and CD-ROM form in order to explore such questions. These students are bright and privileged. They have access to computers at home and have done so since they were young children, they are used to playing multimedia games, they take home video equipment utterly for granted – and, it is important to stress, they still like to read books. The eighth-graders were all born in 1984, the year David Lodge published *Small World* with its account of an information revolution that was already being superseded. To all of these young people, the revolution described by Morris Zapp would indeed seem like ancient history; some of them, most likely, have never used a dial telephone.

The choice to work with young people who have access to a wide variety of media was deliberate in the interest of exploring what happens to young readers who grow up in a setting where they can take the proliferation of home technology as a given. The issue of differential access to technology is a vast and important question but not explored here. Hoping to gain some sense of what the future may look like, the researcher selected participants who are at home in a multimedia world already.

One participant at a time, thirteen students looked at the first page of five different novels, the opening credits of five movies on video, and the early stages of five narrative-based CD-ROMs. Students were to say if they would continue further with each text and why, and what they thought might happen in each story based on what they had seen so far. Their responses were audio-recorded and transcribed.

I held some titles in common across grade levels, and also offered some titles in more than one medium. The complete list follows:

5th grade:	Books	Videos	CD-ROMs
	Anne of Green Gables	*Anne of Green Gables*	*Anne of Green Gables*
	The Secret Garden	*The Secret Garden*	*Oregon Trail*
	My Teacher is an Alien	*Toy Story*	*My Teacher is an Alien*
	The Watsons Go to Birmingham	*Air Bud*	*The Jolly Post Office*
	The Golden Compass	*Little Women* (animation)	*Alien Tales*

8th grade:	Books	Videos	CD-ROMs
	Anne of Green Gables	*Anne of Green Gables*	*Anne of Green Gables*
	My Teacher is an Alien	*Toy Story*	*My Teacher is an Alien*
	The Watsons Go to Birmingham	*Casablanca*	*Virtual Springfield*
	Cat's Eye	*Men in Black*	*Men in Black*
	The Golden Compass	*Benny and Joon*	*Discworld II*

11th grade:	Books	Videos	CD-ROMs
	Cat's Eye	*Casablanca*	*Tex Murphy*
	Soul Music	*Benny and Joon*	*Starship Titanic*
	Middlemarch	*Middlemarch*	*Discworld*
	Sophie's World	*Toy Story*	*Sophie's World*
	The Golden Compass	*Men in Black*	*Men in Black*

Findings

There is not room in a short paper to outline detailed responses to each of these texts. A few general observations, supported with details from the transcripts, make the point.

Overall, these readers were relatively indifferent to platform. They showed no signs of having an automatic preference for one medium over another; instead, they judged each text on its merits. No one rejected all the texts in a single medium or selected all the texts in a single medium without qualification.

In many cases, the students applied a yardstick to the text in question that can best be described as a balance between questions of salience and questions of fluency, or ease of access. They queried whether the text was saying something that they wanted to hear, for whatever reason. They also queried whether they could gain access to that text without undue aggravation or difficulty. These questions arose in all media and were sometimes answered differently for the same title when it appeared in more than one format.

Example 1: The Fifth-Graders

Questions of salience as weighed against fluency came up in many different forms. Here, for example, is Colin, a fifth-grader, on the book version of *My Teacher is an Alien*. He would not read further than page one in this book:

> I don't really like books about boys and they pick on little people and then there's little people trying to find ways, like, to get away from the bullies or whatever. . . . It's about, kind of like, like school kids that kind of, umn, like, he likes to read and, like, he's getting picked on by the bully guy.

Colin's aversion to reading about bullies was his primary response to the book. He was much more attracted to the CD-ROM version of the story, which, not surprisingly, places a much stronger emphasis on the game-playing side of things. Colin played the game for as long as I allowed him, and said he would play much more given the opportunity. It was the different salience that he commented on, rather than the shift of medium. He would expect that "you would keep on going to different classrooms and find different things and then find the classroom with the Principal guy in it."

Colin also took fluency into account with some of his decision-making. He rejected the black-and-white video of the old movie version of *The Secret Garden*: "I don't really like movies in black and white because it's kind of hard to decipher one thing from another."

Megan, also a fifth-grader, looked at the book of *Anne of Green Gables* and also made a decision based on ease of access: "I don't think I would read that one. They use big words and it's sort of confusing." Asked what sort of story she would expect it to be, Megan said, "Umh, like one where she ventures a lot and stuff. I've read one like it." The combination of big words and perceived lukewarm plot is clearly unappealing.

Yet Megan did not reject dense text outright. Given the first page of *The Golden Compass,* she said she would read it because "it describes a lot, like the things. I like that because you can, like, picture it." And Megan did not reject the "ventures and stuff" of Anne Shirley when presented with the story in video form, where the emotional impact of the unwanted orphan is more instantly established. She would watch more, she said, because "I would want to see, like, what happened to Anne."

Megan's responses show an active balancing between how difficult and how interesting she found the stories. The fourth word of *The Golden Compass* is "daemon," a more challenging concept than any of the words or ideas in the opening page of *Anne of Green Gables*. Yet the leisurely discourse of the Montgomery book does not offer her any reason to persevere with the story, even though, as she demonstrated over and over again during this project, she is a reader who actively enjoys description. The direct narrative compulsion of the opening page of *The Golden Compass* clearly caught her attention in a more dynamic way that outweighed any obstacles that unfamiliar words might present.

Megan and Colin present an interesting contrast when shown the early stages of the video of a Japanese animation of *Little Women*. Megan rejected the idea of watching any further; she had read an abridged version of the novel and not cared for it; furthermore, " I don't really like the way, like, they're drawn and stuff. They're sort of different. I don't like it that way." She also rejected the plot line: "Like umh, the father is gone and everything like that. Umh, and that's like, what they talk about a lot and so it's mostly, like, there's stuff happening but they also just talk about that lots."

Colin, on the other hand, was reminded of a Japanese animation he described as his favourite movie. He would watch more of *Little Women*, he said, because "I like the animation and it's kind of gotten an interesting start."

Angela, a third fifth-grader, was explicit about issues of adaptation. She preferred the movie of *Anne of Green Gables* to the book by a slim margin, having experienced both:

> Well, it's kind of hard to say. You had to sit quite long through the movie. It was pretty long but it, you could, it almost expressed the, umh, what was happening better 'cause you could actually see. Like when she dyed her hair green and whatever. That was, I think, better. I like imagining it well enough but the movie was pretty good.

Yet Angela normally prefers the book version:

> I don't usually always like the movies. Sometimes they change things a whole bunch. So they're not – well, to some people they might be better, but to me, I like them the way they kind of were in the book. Like, sometimes they, some movies that they've made, they just twisted the stories around and if I had read the story first I probably would have liked it because it was more realistic and original….

As a reader of *Little Women*, Angela rejected the Japanese animated version for two reasons: "it's not really like the book and it's…the characters look like *Sailor Moon* characters. Like, I would watch it but it wouldn't be a main priority." Asked whether she thought the animation did justice to the characters of the book, she said:

> They're not exactly, well they have the same hobbies and everything, but they just don't seem the way they are in the book so – maybe not the same, well I noticed that Meg didn't have the same hair or whatever, or they didn't – usually they act all together and not separate. And well, I know that Jo likes to write stories and she's a bit of a free will, but I mean, in cartoons I don't think it looks as good.

These fifth-graders are explicitly drawing on intertextual references to help them establish issues of salience and accessibility. There are many versions of, "I read/saw/played one like this and it was satisfying/frustrating," both in terms of content and in terms of processing. Similarly, questions of provenance and recommendation arise often. In conversation students often make reference to how they had encountered a book and what impact this had on their selections. A friend's seal of approval, a formal award, some recognition that someone else had enjoyed this story, might predispose these participants to look more favourably on an opening scene.

Example 2: The Eighth-Graders

Nasrin, an eighth-grader, was explicit about questions of salience and fluency in her discussion of *Anne of Green Gables*.

On first looking at a photocopy of page one of *Anne of Green Gables*, Nasrin said, "This seems a little too advanced, umh, of what I would normally read, but if it was recommended by a friend or had won an award, then I'd probably read it." Questions of fluency would impinge on her interest in the book, on the strength of the first page only, but might be over-ridden by some form of recommendation. As she picked up the book and looked at it, however, we can see issues of salience take over. After a single glance at the back of the book she said,

> Now I'd probably read it! The back simplifies it, from the first text, from the page on the first text so I – actually I like books like this because I, I'd also pick it because I'm not an orphan and I'd probably want to know how it feels to be an orphan, so just for the experience of it, 'cause a lot of books, they can do that.

The leisurely and loquacious introduction to *Anne of Green Gables* antagonized many of these young readers, but not all, and one exception was a reminder that gender stereotypes are not necessarily the whole story when it comes to describing readers. Jack was an eighth-grader who would keep reading *Anne of Green Gables*:

> I would definitely keep going because it sounds like a book that would tell a good story. It would tell a descriptive story that made a lot of sense. I like the way it's written. . . . I mean, I found some old books that I wouldn't read recently, and it was all like, "Bob said…" and it was written not, they were good stories, but it wasn't written well enough to keep me interested – so I like this book a lot.

One of the interesting elements of the students' responses is that issues of salience and fluency apply to all the media we explored. Here, for example, is Anita, an eighth-grader, asked if she would watch more of the movie *Casablanca*:

> Probably not because even from the start I didn't even understand it so, umh, it seems more like a history movie to me. Although I don't really think that's what it's supposed to be, but I think I probably just wouldn't pay attention, I'd just lose track. It would be a waste of my time.

Fluency and salience are both affected by repertoire in this instance. Anita makes a genre link to a history movie of the kind that would be offered in a social studies class, and this is not an unreasonable connection given the introductory map and the newsreel-style voiceover at the outset of *Casablanca*. At the same time, she recognizes that she does not have an immediately accessible repertoire of background information that would render this movie quickly transparent to her, so she rules it out.

The computer game of *Men in Black* provided some interesting examples of differing responses. The question of fluent access arose very sharply for many users. Unlike all the other games on offer, it runs on keyboard controls rather than on the mouse. The opening scenes are rigidly organized and if you do not choose correctly you are blown up very quickly. On the other hand, most of the eighth-graders who looked at this game were familiar with the movie and indeed had just seen the opening credits as part of the video collection, so some questions of salience were straightforward.

Anita rejected the CD-ROM because of the violence, though she had enjoyed the movie. She also disliked the keyboard control. Catherine also rejected it, but more for the absence of action combined with the cumbersome quality of the keyboard controls: "It's pretty complicated and you just get to walk around and that." Madeleine was another player who rejected the game; she likes action games but only if they are easy to play and this one was too complicated for her – a textbook case of balancing salience and fluency.

In this case, Jack proved that gender stereotypes sometimes do ring true. He knew the movie well and had actually played a demo version of the computer game of *Men in Black*. The issue of fluency played itself out differently for him: "I like the keyboard because you, it's – because I think you have more control. You know where you're going, you can't skip." Possessing a set of skills more appropriate to the requirements of the game, he was able to comment, "I like it. I think it's easy to navigate and, umh, it makes sense. There's a story that begins to develop and ah, yeah, it's more fun!" Again, it is possible to see him weighing the trade-off between interest and accessibility.

Conclusions

The above sampling of comments gives only a taster of a fascinating collection of responses. These young people are clearly accustomed to making judgments about whether a text is worth the investment of their time and were able to articulate their reasoning in a very informative way. It is very clear from the transcripts that these students are used to having a broad range of texts to choose from; they did not express any great commitment to persevering with a story that struck them as dull, although one or two did mention that they might expect a text to get better after the first confusing stages.

Weighing the balance between personal salience and fluency of access was a strategy that manifested itself across all three media and for many different texts. The students explicitly worked on a kind of trade-off: the more salient the story, the more prepared they were to invest time and effort into reading or viewing or playing. It is worth noting that there were some examples in which fluency and salience were a two-way measure; students rejected some texts because they seemed too simple either in terms of writing or in terms of content.

Students were clear that some stories work better in one format than in another, but at all times it appeared to be the story they were judging; the platform was an issue only as it provided appropriate access to the story in question. All students testified to enjoying stories in each of the three media we were discussing—print, video, and CD-ROM.

Asked a general question about which of the fifteen texts they would most like to take home, the students came had varied answers. Six said they would take a book. Three opted for video and two for a CD-ROM. Three added a qualifier that they would not really like to choose between one and another, that they have different preferences at different times of day and so forth. Whatever the effects of easy access to different media upon these students, it is clear that the book continues to be a meaningful choice for them.

If a single sentence could sum up this part of the project, it would be that these young people demonstrate a predilection not for "either/or" when it comes to media but rather for "both/and." They are interested in and also selective about all forms of media. They are able to discriminate in meaningful ways among texts and to articulate the reasons for their choices. They are neither overly dazzled by bells and whistles, nor dismissive of print. They confound many stereotypes about their generation and perhaps about the nature of the communications revolution. We may learn much of value about the future of stories in many media through listening to their youngest consumers.

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Students and the World Wide Web

Issues of Confidence and Competence

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As students ponder their use of the new technologies in schools and at home, what issues are raised for librarians and teachers? Do teens exaggerate their confidence and competence as they report their perceptions of using technology? In this study, four 16 year olds discussed their personal experiences in using the Internet for work and for pleasure. From their musings, we may begin to see a pattern of developmentally specific activities for using the new technologies that differs from adult expectations.

Introduction

In a previous study (Watson, 1998), I examined the perceptions of a small group of eighth grade students regarding their experience with technology. The students offered insights into *personal attributes* that included expressing self-confidence as they negotiated their way through the World Wide Web. They articulated *particular skills* in reading and managing information needed for electronic searches. The overall tone of the students' interviews revealed a sense of familiarity, openness, and independence regarding their use of the Internet, especially the World Wide Web. In the first interview, the students had been involved in a public school system's special technology program for three years. However, in that study, few of the students suggested ways to assess information nor evaluated the quality of search results. Therefore, I wondered whether these particular teens' tone of assurance and sense of confidence matched their specific skills and competence in using the Web. In adolescence, students may project a sense of assurance to mask insecurity or mimic adult behaviors, without sustaining the emotional maturity which adults should exhibit (Erikson, 1950, 1993; Meeks, 1986). Therefore, I wanted to interview the same students two and a half years later to see if their perceptions reflected a similar tone of confidence and competence. I also wanted to hear from the same students because of their unique circumstances, the benefit of their early years in the "twenty-first century" classrooms provided by state funding (Tennessee Code Annotated 493-351). That is, I wondered whether a tone of bravado might emerge because of their developmental age or whether these students genuinely expressed confidence because of their particular competencies from sustained use. I was eager to discover any new issues that these particular students would raise. I embarked upon locating as many as possible of the original nine students whose comments I had analyzed for the previous study.

Research Questions

My umbrella question overlay all subsequent queries and probes: "How do you use the new electronic technologies?" I sought examples of ordinary and special use of technology, specifically of the Internet, to assess how these young people used the World Wide Web as a resource and how they used e-mail, chat rooms and other communication opportunities. I wanted to understand what I had previously perceived as the teens' overt projection of confidence and what skills and competence levels they revealed as they spoke of using technology. I asked how they learned to search for and access information. I listened for instances in which the young people analyzed the quality of information. I probed for examples of critical thinking and evaluation in searching. I remained open to hearing ways of using the Internet that might be particularly youthful endeavors, reflective of teens' developmental needs.

Methodology

Taking my lead from Dervin's (1977) charge to begin understanding more "about how people make use of libraries, or, for that matter, how they make use of the prime collateral of libraries -- information" (p. 17), I continue to seek understanding of young people's perceptions of their use of the new technologies. Since perceptions are not easily measurable, I strive to make sense of others' sense-making (Dervin, 1986) by interpreting incidents and experiences. "The interpretive task begins with perception when a person first encounters new information" (Kuhlthau, 1993, p. 342) and ends with noting patterns, making inferences and going beyond the information given (Bruner, 1973). I wanted to explore each student's experiences, to go beyond them by listening to specific examples, connections and tone, and to probe to make some meaning. As a qualitative interview study, I dedicated myself to listening to what students revealed to me rather than imposing an hypothesis.

I asked how each student used the technologies on his or her own initiative and for school research assignments. Although my interviews followed an open-ended, conversational approach, I prompted each of the interviewees in similar ways by asking for examples. I asked how they assessed sites and books as credible sources of information.

I read each transcribed interview to shed light on a single student's experience. I immersed myself in the text to examine the key phenomena offered to explicate my question, "How do you use the new electronic technologies?" Pollio, Henley & Thompson (1997) in writing that "the objects of our awareness reveal what is noteworthy for us" (p. 8), suggest that what students choose to share, to tell about their life experiences with technologies will be, indeed, what is important to each as a user. In closely reading a single text, I began to hear what phenomenologists (Gadamer, 1975; Pollio, et. al., 1997) call "a stance." Students appeared to be in the process of creating a singular relationship with the computer, specifically, the Internet, and its capabilities. Each interview text revealed a distinctive stance of use, comfort level, trust, and understanding between individual user and the Internet. I plan to analyze a single student's characteristics and changes in a future study.

I reviewed all the interview texts as a whole in order to discern patterns amongst the users. In reading widely across all four texts, I noted similarities in the students' stories. For example, I found that their stories shared a common stance regarding *personal use* as different from *school use*. I noted that each of the students seemed relaxed and proficient in personally using the Internet, but wary of accessing websites for school research purposes. These commonalities offer teachers and librarians a challenge: can we find ways of using students fondness for personal communication as an enticement for school research use? In appreciating what some students say about their use of technology, and in knowing about adolescent developmental needs, we begin to gain understanding about their sense of the current electronic technologies.

Students

For the current study, each student—formerly eighth graders—was preparing to enter their junior (i.e., penultimate) year of high school. Of the nine students who participated in the original study, I was able to interview three: Polly, J.R., and Mike (aliases from the earlier study). Two students had moved. Although I contacted four others, one declined (Lauralee) saying she was unable to participate. Two (Will and Vel) were unreachable. Will's grandmother said, "In the summer, he hits the streets." Vel's grandmother arranged a time, but was unable to keep him in the house for the time she had set. Another student, Bryce, spent the summer out of town.

To supplement the three student voices, I added comments from another sixteen year old (Tara). As an eighth grader, two and a half years ago, she participated in the phone interview regarding the question, "How do you find information for a research report?" (Watson, unpublished). For purposes of the current study, she interviewed by email. In reading the interviews of Polly, J.R., Mike, and Tara, I note some common themes of use.

Limitations of study

In making meaning of student perceptions, it is necessary to be cautious in generalizing or drawing conclusions. Nevertheless, discussions with teens can offer insights to those who care to motivate and extend students' learning. Listening to student voices may provide a tip or two; a small but successful idea from young people may lead adults to consider employing it with others. Perceptions also may not constitute reality or truth. Even so, "Understanding the meaning of some experience requires us to describe the intentional stance (or situated perspective) of the event from the point of view of the experiencing person" (Pollio, et al., 1997, p. 8).

I analyzed three reasons why I might not have gained the interest of the students who did not participate in the second study. First, I realized that the previous study tapped a captive audience during school hours. Students may relish an opportunity to get out of class; to be interviewed appears as a novelty. Summertime interviews for young people may not appear as an attractive competitor for leisure time. Second, three of the four who did not participate had no access to home computers. In my earlier study (Watson, 1998), I wondered whether the notion of access offered a stimulant for self-confidence. I suggested that,

> Knowing that one has access and knowing how to access technology may suggest a kind of powerful knowing. In an emergent culture such as one which unfolds before us technologically, learners must feel assured that they can have access, belong to and stay close to the changing culture, rather than fearing its new iterations (p. 1027).

My sense is that, for the students declining to be interviewed—who have no access to the Internet in their own homes, and who have less access to technology in the high school than in their middle school program—a lack of confidence overpowered their sense of the interview as novelty. During their eighth grade years, both Vel and Will regularly used the public library to access Web sites. As sixteen year olds with new interests in work and leisure, being seen at the public library might not as easily fit in with their new roles and images. And third, the "Hawthorne effect" of the state's technology program might offer some insight into the documented enthusiasm and confidence of the eighth grade students in contrast to their current lack of interest in being interviewed. Three students interviewed (J.R., Mike and Tara) had Internet access in their homes. Polly used school and public library access.

Discussion

To examine notions of confidence and competence in using the Internet, I noted the difference in the tone of talk regarding *personal use* as opposed to accessing information for *school use*. The students' words provide two entry points for looking at *personal use:* "E-mail was a gift from the gods" (Tara) and "I feel . . . confident, just mainly through experience" (Mike).

To examine the broad category of *school use*, student statements reveal the suspicion and reticence with which some regard searching the World Wide Web for information. I use Jason's statement as a header -- "[Web authors] are citing their (sic) selves pretty much" -- to examine the students' hesitation to use the Web for school research. Polly offers the header for discussing technology training, "I don't remember any classes about using the Web."

Personal use: "E-mail was a gift from the gods" (Tara)

Most teachers and librarians would agree with scholars who suggest that the adolescent period is marked by teens' reaching out and forming strong links to their peers as "an important source of information and opportunity for socialization" (Lefrancois, 1999, p. 348). The four students perceived the Internet mail services as first priority. Each enthusiastically shared their experience and perceptions of communicating with friends and with strangers who share similar hobbies and interests. Tara and Polly, the two females, correspond with friends far and wide, out of state and away at college. Tara wants very much to "keep in touch. . .with a lot of friends who live out of state," so, besides her e-mail account, she downloads instant messenger services to "see which friends are online and to chat with them." She says the difference between this format and chat rooms is you don't talk with "a bunch of random people. . .making it a lot safer, in addition to a lot more interesting."

Polly uses email to "talk to some of my friends in college" and her Chilean exchange student friend "e-mails her family and friends and stuff from school."

Jason and his girlfriend use WebTV to chat. "We just talk about sports and stuff. . .we just set up a time when we can both be on. It's not that much different than using a phone." He also emails "a couple of girls and a couple of guys. We correspond about sports and tips."

It should come as no surprise that teens embrace the Internet as a tool for communicating with their friends and acquaintances. Internet mail services allow teens to keep in touch with many friends, "always" (Tara). To maintain communication effectiveness, teens have learned the latest technologies such as "instant messenger services." Communicating, in all its iterations, fits the developmental need for socialization at this age.

Employing electronic mail services as a more formal source of information, Mike assesses his experience with chat rooms:

> bad situations don't arise in a chat room unless you are ignorant to them. . .a lot of chat rooms are designed for one hobby or sport and you can go in those and meet people from all over the world in different countries. . . I'm a soccer player and I'm a knife collector, as a hobby, and I'm an avid outdoorsman. And so, for each of those three, there's a different chat room set up explicitly for that. . . . in the knife one, I find myself giving a lot of information. In the hunting one, I've always been an avid outdoorsman, but as far as a hunter I'm very new, and so in that one, I receive a lot more information. . . I talk to people who are at University of Florida, . . . UCLA, Indiana, North Carolina, Virginia, the big soccer schools. And I get feedback from them about how they got there, what they like and don't like about their soccer program.

We interpret that Mike perceives himself as knowledgeable of chat rooms. He has considered the reputation of chat rooms, suggesting that one must negotiate them. He uses the chat rooms for focus areas, negotiating familiar terrain. Mike perceives specialty chat rooms as a reference source for his information needs. Selected chat rooms offer him the opportunity to share his expertise and to develop his interests, by offering and seeking information.

Mike manifests two adolescent attributes, that of metacognition, showing one's thinking about thinking or knowing about knowing, and traditional adolescent egocentrism (Vartanian and Powlishta, 1996). As we consider the information processing approach of intelligence, we are reminded that individuals both create a knowledge base and develop cognitive strategies, thus "gradually developing an awareness of self as a knower" (Lefrancois, p. 257). By discussing his interaction with chat rooms and by expressing his opinions in acknowledging both expertise and novice levels of knowledge, Mike illustrates that he thinks about his own thinking (metacognition). Yet, his self-assured and lengthy speech-like responses to the question of "How do you use the technologies," reflect an "adolescent egocentrism" whereby teens perceive that everyone is watching them because they are a special model or example. Pride in knowing how to use the electronic technologies offers a perfect medium for such egocentrism. Many adults lack Mike's experience and self-assurance about using the Internet. The interview experience, also, adds to the perception that he is being singled out for his specialness. Jason, too, portrays himself as confident, "I give . . .(my brothers) tips. . .I'm sixteen and my brothers are 20 and 14 . . . and over the years, I just pretty much taught myself."

Papert (1993) has called the computer the "children's machine," because today's young people and the computer technologies have grown up together. Young people may express self-confidence when adults ask them to discuss what they know about technology. Students may believe that the questioner or interviewer does not really know about the technologies, per se, rather than appreciating that she is inquiring about the individual's own perceptions as a key to understanding more about use.

Personal use: "I feel . . . confident just mainly through experience." (Mike).

Tara, Jason, and Mike expressed ease and authority in their discussion of personal use. Polly's use was more limited because of lack of convenience, requiring school and public library access to the Web. For her, the "nice thing is the maps. Well, I look at information for colleges." Tara and Jason access music and information about their favorite groups via the Web. Jason reported, "I . . . search what I'm looking for and just type in the words and it will take me right to whatever I want . . . I'm pretty successful, not usually frustrated." Tara "checks up on mostly humorous" Websites. And she "rarely surfs aimlessly. That's just pointless." Thus, we begin to appreciate these students' focused searches for specific topics of personal interest. One can appreciate that these users become more expert because of their regular access and assessment of sites in which they are knowledgeable. The students display a level of critical thinking in their comments about use. Their decisions to accept or reject sites and to know why they do so, show an understanding of how the Web works.

If we begin to understand the characteristics of adolescent behavior, then we appreciate that the confidence exhibited by the adolescents, both at ages thirteen and sixteen, may arise from two sources: one, the natural developmental stage and the other, the students' long-term use. What I named "bravado" in the earlier study (Watson, 1998) may suggest a common teen characteristic. But what we might add to the interpretation is the evidence that these particular students are regular users who feel comfortable and knowledgeable in their use of the Internet mail services and Web sites for their personal use. Thus, in the personal realm, for both communicating and information-gathering and exchanging, these students' self-perceptions show both confidence and competence.

School Use: "[Web authors] are citing their [sic] selves pretty much." (Jason).

The students do not show the same kind of confidence in using the Web for school research. Polly revealed that "it's not my first choice for information, when I want information, unless there's no other way to get it." She suggests that Web sources may conflict, "even with itself or some things that you know yourself that are just not true." For her research on the artist Giotto, Polly found sites that had "dates that were off by ten years for different things. . .like his different works." She trusts the authority of print publishing, by adding that books have "the editor and people like that to go through them." Jason agrees by suggesting that "people just mess around on it (the Web) so much that they're citing their (sic) selves pretty much." Mike adds that "you have to take what you know and apply it to what you read. . .because of the sites that will just be hair-brained or off the wall."

From their assessment, the students claim some frustrations around locating and trusting "official" information required for their school assignments. Polly suggests that "not knowing what's useable" suggests frustration from wanting to learn about the topic as a novice. With little background to assess the veracity of the site information, when one finds dates conflicting or other small errors, one is wary of trusting the site as a whole. And Mike knowingly alludes to the fact that one must know about the topic in order to measure or evaluate trustworthiness. Tara adds to the same concern.

> sometimes I use the Internet to find information, but only when I have exhausted other alternatives, like the phone book or the encyclopedia. Generally the Internet is not a good place to find information -- it's way too disorganized, and it's more self-aggrandizing junk out there than anything else. However, if you have the patience to wade through the garbage, you can find useful things . . . academically, the plain old Internet is pretty useless. Few Websites are concerned with presenting unbiased information. Online magazine archives that people like J. (her step-mother and also a librarian) have access to are useful, but I don't know how to use them. That's probably my fault, though.

Comments about disorganization, about bias do not appear in these students' reflections on their personal use. Willing to accept or reject their peers' or fellow hobbyists' insights into familiar topics, these users perceive that assessment is not easy with new subject matter. How does one gauge information on Websites? Jason and Mike seek "official" markers to find the best electronic sources. Jason suggests, that if a site says, "Fred's Web site or something, well, you know that that's probably not going to be real."

Understanding that online magazine and document archives exist, Tara admits that she doesn't know how to use them and assumes some responsibility for that lack of knowledge. In effect, none of the four students interviewed suggested any systematic training in information literacy. Mike said to learn the directions for Website use, "Ironically all you have to do is read the paper. They'll present it right in front of you after you do a search; it will say. . . it's got to be very specific but very accurate as well."

The level of self-direction and training varies amongst individuals. A self-proclaimed "directions reader" (Jason) with hands-on experience may begin to refine the skills of electronic searching, but what kinds of formal introduction to information literacy have these four students received?

School Use: "I don't remember any classes about using the Web." (Polly).

Mike suggests, "the one formal class I ever took which was a required class . . . was a keyboarding class." He further explains, "there are Internet classes that you can take as an elective but, in order to take that, you know, you can't take your required, your 'meat' classes. Not many people do that that I know of." College-bound students, such as Mike, find it difficult to schedule the elective technology classes. And so, one wonders how classroom teachers might infuse teaching information literacy throughout their 'meat' classes?

In a recent essay, Cuban (1999) addresses the question, "Why is greater access not translating into better classroom use?" He suggests that seven of ten American teachers, "Have computers at home and use them to prepare lessons, communicate with colleagues and friends, search the Internet, and conduct personal business. . .(using) computers at home more than at school. No technophobes here" (p. 68). However, in examining day to day working conditions and expectations for school success, he finds that teachers encounter such "contradictory advice from experts" (Cuban, 1999, p. 68) and "inherent unreliability of technology" (ibid., p. 47) as well as other challenges, that fewer than two out of ten "are serious users of computers and other information technologies in their classrooms" (ibid., p. 68). Meghagbhab (1997) found the same in her Georgia study. Thus, one might suggest that the teachers' use mirrors the students' model of personal use. Public school policy makers may begin to understand that it is not enough to supply schools with hardware and software without re-structuring fundamental curriculum expectations and offering staff support.

Conclusion

In listening to a small sample of high school students who have been exposed to classroom computers since their fifth grade, we find that they express greater self-confidence and competence -- expertise -- in using the Internet for their personal use than for their school use. Bilal (in progress) has found similar response 8th graders' searching both self-selected and teacher-assigned topics. Sternberg's (1998) work on developing expertise suggests that, although rates of learning differ in individuals, the amount of direct instruction, the amount of problem solving, the amount of time and effort spent in thinking about problems in the area influence levels of competence, and resulting users' confidence. Direct instruction and practice in solving the problems of seeking and evaluating information may strengthen research skills for school assignments.

How can we initiate ways to offer direct instruction for solving research problems? More than simply suggesting schools add to a school media specialist's workload, we might consider individual teachers and librarians collaborating in teaching information literacy. Learning from students' informal and personal use of the Internet, we might inspire school research through individual interests. In appreciating that exploring and assessing information --both print and electronic -- requires "problem solving" and "practice time" (Sternberg, 1998), we may gain new understanding of how to create the conditions for engaging in research projects within a school program.

School reform, curriculum and professional role changes assume commitment, hard work and time. But, if we believe that the Internet offers valuable resources to students, educators must seize ways to assist all students to learn the new tools and ways of thinking about such tools. In considering how to expand students' competence with the "children's machine" (Papert, 1986), we may not create generalized or prescribed solutions. But the first step may call for listening to the students, teachers and librarians within a single school. In such a learning situation, we assume a reflective mode of learning from the known (when do students and teachers feel confident and competent?) in order to gain insight for the unknown (how may we expand levels of confidence and competence in research skills?). Over time, we may begin to gather information from individuals to create ways of furthering the relationship between user and electronic technologies.

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Evaluating Web Sites

A Critical Information Skill

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The evaluation of Web resources has become a critical information skill for students. Because of the uniqueness of these resources, new tools are required that not only assess the content validity and mechanical functionality of a Web site, but also its motivational quality. This paper describes the development and validation of a set of Web evaluation tools (Website Motivational Analysis Checklist: WebMAC), designed for use by students in grades 1-12, that are based on motivation theory and provide multiple feedback mechanisms.

Introduction

Just as with the growth of print resources, as the number of electronic resources continues to escalate, the need to evaluate those resources increases in importance. The evaluation of networked information resources, such as Web sites, requires new tools that encompass a broader concept of evaluation, In addition to the appropriateness and authenticity of content and soundness of the design, other evaluation criteria include such issues as currency and coverage (Alexander & Tate, 1998). Furthermore, assessing the functionality of the various mechanisms of a site to identify technical problems and improve user control and Web site consistency is important (Nielsen, 1994).

A number of evaluation instruments (e.g. Caywood, 1998; Schrock, 1997) have been developed to help library media specialists and teachers judge the suitability of a Web site for their instructional needs. Some focus heavily on content validity issues while others focus on functionality issues. While these issues are extremely important, there is another issue that has largely been ignored by other instruments; i.e. the *motivational quality* of a Web site. Motivational quality refers to the site's ability to motivate users to visit, engage, and return to it. Furthermore, most Web site evaluation instruments are designed for use by adults; few are created for independent use by students or as a tool for teaching students a structured method for evaluating Web sites. Finally, few instruments have detailed scoring mechanisms that allow visual analysis and interpretation for improving the site.

Until now, there have been no Web site evaluation instruments that both focus on motivational quality (how well the site attracts and engages the user) and are designed for use by both students and educators. *The Website Motivational Analysis Checklist (WebMAC)*© is a series of 7 instruments, five of which are designed for use in education contexts. *WebMAC Senior* (Small & Arnone, 1998), a 32-item instrument, was designed to be used with students in grades 9 and up. All other instruments were adapted from *WebMAC Senior*. *WebMAC Junior* (Arnone & Small, 1999), a 16-item instrument is targeted toward students in grades 1-4. Two other versions of *WebMAC Junior*, *WebMAC Investigator* (Arnone & Small, 1999) a 12-item instrument and *WebMAC Junior---Long Form* (Arnone & Small, 1998), a 24-item instrument, are also available for this level. *WebMAC Middle* (Small & Arnone, 1998), a 24-item instrument, is intended for students in grades 5-8;

All of these instruments emphasize motivational quality while including functionality and content validity items, framed in terms of their effect on motivation. These instruments differ from other Web site evaluation instruments because they are (1) theoretically based, (2) user-centered, (3) use a research approach, and (4) allow feedback for improvement from multiple viewpoints (Nielsen, 1994).

Research Questions

This evaluation study documents the creation and testing of these Web site evaluation instruments and describes their potential applications in instruction. Research questions include:

1. What motivation theory(ies) are most appropriate as a basis for the comprehensive evaluation of Web sites?
2. Do the *WebMAC* instruments adequately and validly test the motivational quality of Web sites?

Methodology

A survey of the motivational literature was conducted to investigate Research Question #1. A comprehensive, well-researched theory that could be adapted to the assessment of electronic environments (particularly Web sites) was sought. Formative evaluation methods that included iterative testing of the instruments were implemented with educators and children while factor analyses were conducted to confirm the theoretical basis of the instrument. These provided evidence for Research Question #2.

Results

Research Question #1

A survey of the motivation literature revealed one long standing, well-researched theory that appeared to be both highly applicable to and comprehensive for the evaluation of Web sites. Expectancy-value (E-V) theory (e.g. Vroom, 1964) states that motivation is defined by the type and amount of effort an individual exerts on a task. It further specifies two prerequisites to effort: value and the expectation for success. Both prerequisites must be met for effort (motivation) to result.

While E-V theory has been widely supported in research on motivation in the work environment, it is only recently that this theory has been applied to research on motivation in electronic environments. For example, Burton et al. (1992-1003) and Snead and Harrell (1994) found E-V theory a useful theoretical framework for studying motivation in evaluation of expert systems and of electronic decision support systems.

E-V theory forms the theoretical basis for the *WebMAC* instruments described in this paper; i.e., the degree to which both value and expectation for success are attained comprises the motivational quality of a Web site. Value is defined in terms of two attributes---how stimulating and how meaningful the Web site is to the user. Expectation for Success is also defined in terms of two attributes---how organized and how easy-to-use the Web site is for the user.

The *WebMAC* instruments use Likert-type items (strongly agree-strongly disagree; not applicable) for evaluating a Web site. "Not Applicable" items are further scored in relation to their appropriateness for that site.

Examples of Value and Expectation for Success items from *WebMAC Senior* are:

> 9. This Web site is fun and interesting to explore. (Value: Stimulating)
>
> 16. Navigating this Web site does not require any special skills or experience. (Expectation for Success: Easy-to-Use)

WebMAC Middle uses the same format as *WebMAC Senior* but uses simpler language and slightly different ratings (definitely agree - do NOT agree). There is no "Not Applicable" designation. Examples of Value and Expectation for Success items from *WebMAC Middle* are:

> 19. The information at this Web site is useful to me. (Value: Meaningful)
>
> 10. There is a menu or site map that helps me understand how much and what kinds of information I will find there. (Expectation for Success: Organized)

The *WebMAC Junior* items use smiley faces (excellent-very poor) to represent response choices. It does not break items down into the four attributes but simply categorizes items by Value and Expectation for Success. An example of Value and Expectation for Success items from *WebMAC Junior* are:

1. When you first arrived at this Web site, did it look like this would be an interesting or fun Web site to explore? (Value)

☹	😐	☺	☺
0	1	2	3

2. Was it easy to find your way around the different parts of this Web site? (Expectation for Success)

☹	😐	☺	☺
0	1	2	3

After completing the scoring of all items on a *WebMAC* instrument, the student transfers scores to the appropriate E-V category columns and totals scores. Totaled scores are plotted on scoring graphs and grids for quick visual assessment of the strengths and weaknesses of the site and comparison among evaluations.

Research Question #2:

More than 100 students and educators have participated in iterative testing and validation of these instruments during the past two years. Initial testing focused on *WebMAC Senior* since it was the first instrument developed and the other instruments were adapted from it.

A group of 23 graduate students was asked to independently evaluate an assigned Web site using a 60-item *WebMAC Senior*. Items were randomly ordered to prevent clustering and categorization. Analysis focused on the distribution of item scores. Items with a wide spread of scores (set at 1.00+ standard deviation) were either revised or eliminated, resulting in a 40-item instrument.

Two additional tests of the 40-item *WebMAC Senior* were conducted in which 34 graduate and undergraduate students were observed as they evaluated one of two pre-selected Web sites that were considered moderately motivating. They provided qualitative feedback on each item and on the overall instrument. Finally, the instrument was administered to 226 graduate and undergraduate students who were asked to assess the same Web site. Factor analyses were conducted to verify clustering of items into proposed categories, resulting in the final 32-item instrument.

The original *WebMAC Junior* (24-item) and *WebMAC Middle* (32-item) instruments were reviewed by 21 educators for clarity, comprehensibility, and face validity, resulting in minor modifications. *WebMAC Junior* was subsequently tested with ten children in a formative evaluation conducted by the producers of a nationally-televised children's television program. Information about individual items was collected to determine how children understood and interpreted each question. Additional observations and focus group interviews yielded rich qualitative data and provided a more in-depth understanding of children's attitudes toward the instrument.

Finally, a large-scale pilot test was conducted on *WebMAC Junior*, with over 500 students (grades 1-4) participating in testing the instrument. As a result, the wording of several items was modified and the shorter, 16-item instrument was created. Factor analyses on the results will be conducted and reported. Based on the results of testing the other *WebMAC* instruments, *WebMAC Middle* was modified to a 24-item instrument.

The *WebMAC* instruments are currently being used by educators around the world. *WebMAC Senior* has been translated into Portuguese for use in Brazil and *WebMAC Junior* has been translated into Japanese and Portuguese. In addition, the instrument has been used in more than 40 schools and colleges across the United States. Complete background information, descriptions, the instruments, their scoring and administration directions, and stories of implementation in a variety of contexts are contained in our books, "Motivation Mining: Using Evaluation Skills to Find Web Treasures(Grades 1-6) and "Motivation Mining: Using Evaluation Skills to Find Web Treasures (Grades 7-12), available this fall from Linworth Publishing, Inc.

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Web-based Instruction for School Library Media Specialists

Unleash the Power of the World Wide Web

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A Web-based distance learning course developed with World Wide Web Courseware (WebCT) is the focus of this study. The course, Advanced Reference: Online Searching Techniques, concentrated on assisting students in developing skills for searching Internet resources, in particular the resources and databases of the Georgia Library Learning Online (GALILEO) initiative. The sources of data were logs from the synchronous chat area, bulletin board postings, e-mail communications, course usage statistics, student projects, and structured interviews with the participating students. Results from the preliminary study indicate the following: (1) participants' attitudes towards Web-based instruction are positive and (2) Web-based instruction provides a learning environment in which participants can develop electronic literacy skills and share their ideas and projects.

Introduction

In the fall of 1998, eighty-nine percent of public schools were connected to the Internet with 51% of classrooms, computer labs, and libraries having Internet access; the percentages were 27% in 1997, and only 3% in 1994 (U.S. Department of Education, 1999). Vast technological changes are taking place in schools. Unfortunately preparation programs for school library media specialists are not providing a technology-rich environment where students can develop the requisite skills to become instructional leaders. Collaboration, leadership, and technology are seen as the underlying themes for guiding the library media specialist in developing an effective, student-centered program (Hopkins, 1999). The three themes are intrinsically inter-related. To effectively collaborate and lead, media specialists must be equipped with the skills necessary to assist students and teachers in using online as well as print resources. The situation is not new, but has been exacerbated by the significant and rapid adoption of computer-based information technologies in many schools. An often-heard lament is "the things I didn't learn in library school."

Marcia Bates (1999) in a paper presented at The American Library Association Congress on Professional Education made the following comment concerning information technology and library education: "To get out there in that wider information world we do have to have a better understanding of the information technology than library education has typically afforded" (2c). Main (1998) suggests that "requiring all students to take a class through a Web-based virtual classroom ensures that students learn in an environment in which they will have to work" (p. 341). In the fall of 1998 Georgia State University began supporting Web-based distance education, thus providing an opportunity to use information technology to teach a course that focused on information retrieval and use.

Background

Advanced Reference: Online Searching Techniques had traditionally been taught on campus. In the spring of 1999 it was offered as a pilot distance learning course. World Wide Web Course Tools (WebCT) was the course management and delivery system employed to make the course available in a distance learning environment. Piloting the course offered the instructor an opportunity to evaluate the course and determine if Web-based distance learning was a feasible and effective means of delivery for this particular course content. Using the data gathered during this research, the course content and features are being revised. The course will be offered again in the spring of 2000. School library media specialists enrolled in the Educational Specialist Degree Program with a concentration in library media technology are the targeted audience for the course.

Course Design

Alessi and Trollip (1991) identify four components for effective instruction: (a) information presentation, (b) learner guidance, (c) practice with feedback, and (d) learning assessment. Web-based instruction can support any or all of these elements of effective instruction. These four components guided the design of the course.

Information presentation. The course was developed as an information "container" with course tools, assignments, and hyperlinks to external web sites. Information was presented primarily using WWW pages.

Learner guidance. The chat room provided a means of synchronously communicating with students to discuss course content and exercises. Students submitted assignments electronically as attachments to e-mail. Private mail provided an audit trail and permitted a means of quick response to student questions.

Practice with feedback. Six sets of reference questions were posted in the bulletin board area. Practice searching helped refine students' search strategies. Feedback was provided during chat and grades (or points earned) were posted in the student grade area.

Learning assessment. Student projects were shared in the student presentation area. Collaborative tools such as e-mail, live chat, and a shared space for student presentations were used for learner guidance, dialogue, and practice activities.

The course provided an opportunity for students to develop and practice the following technology-based skills in an Internet environment; skills that are certainly required if school library media specialists are to successfully model information literacy skills for others. The skills encompass the following areas:

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1. computer skills
2. communication skills (including electronic mail skills)
3. online information retrieval skills
4. web editing skills
5. evaluation and synthesis skills

World Wide Web Course Tools (WebCT)

Web-based instruction is viewed as an innovative approach for delivering instruction to a remote audience, using the Web as the medium (Khan, 1997). WebCT is a tool that facilitates the creation of Web-based learning environments. The first page of a WebCT course is the course home page. The home page can be configured as needed. Tool pages can be created and linked from the course home page. The designer can choose what tools to use.

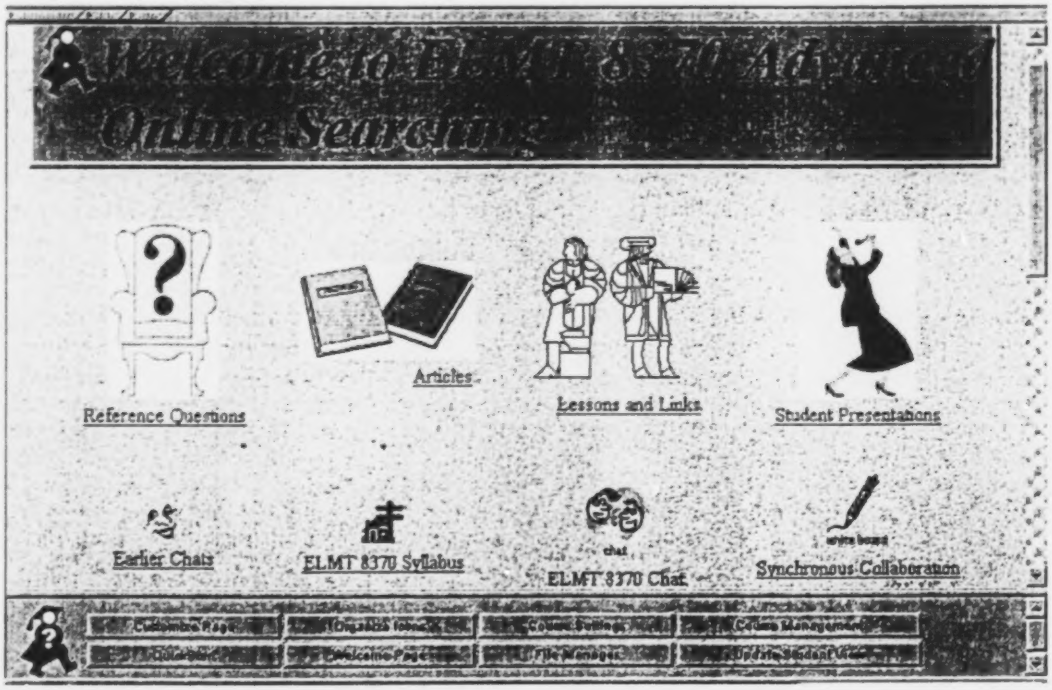
Welcome to ELMT 8370 Advanced Online Searching
Reference Questions
Articles
Lessons and Links
Student Presentations
Earlier Chats
ELMT 8370 Syllabus
chat
ELMT 8370 Chat
white board
Synchronous Collaboration
Customize Page
Organize Icons
Course Settings
Course Management
Welcome Page
File Manager
Update Student View

Figure 1. Course Home Page for ELMT 8370

In Advanced Online Searching, the participants used the bulletin board, the electronic mail tool, and the real-time chat facility. Students published their class projects in the student presentation area. Six sets of reference questions were posted on the reference question tool page and students e-mailed their responses to the instructor. The grade tool allowed students to monitor their posted grades.

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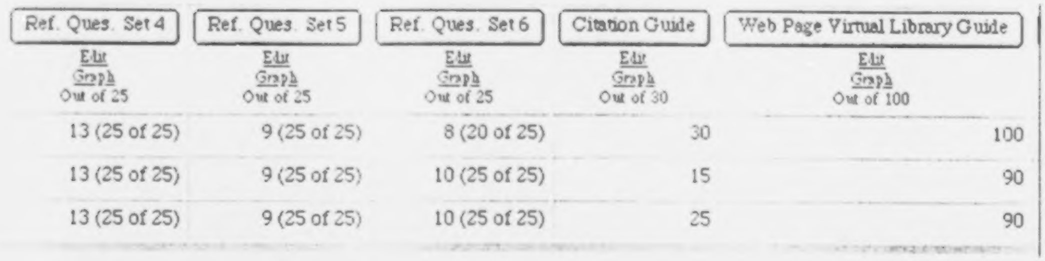

Ref. Ques. Set 4 Edit Graph Out of 25	Ref. Ques. Set 5 Edit Graph Out of 25	Ref. Ques. Set 6 Edit Graph Out of 25	Citation Guide Edit Graph Out of 30	Web Page Virtual Library Guide Edit Graph Out of 100
13 (25 of 25)	9 (25 of 25)	8 (20 of 25)	30	100
13 (25 of 25)	9 (25 of 25)	10 (25 of 25)	15	90
13 (25 of 25)	9 (25 of 25)	10 (25 of 25)	25	90

Figure 2. Student Grade Tool

In addition to responding to six sets of reference questions, the students also developed a collection of annotated bookmarks for important WWW resources, created an electronic guide to citing sources, and designed and published a virtual library guide for a specific audience. Students uploaded their hypertext markup language (html) files and associated image files to their individual directories in WebCT. Eight discussions were held online using the chat facility. The lengthy sessions are automatically archived and the transcripts of the past sessions were posted on the main course page. The chat sessions provided an avenue for discussing the assignments and readings.

The first half of the course focused on Internet information resources and the second half focused on the information provided in the Georgia Library Learning Online (GALILEO) databases.

GeorgiA LIbrary LEarning Online (GALILEO)

In Georgia locating information is facilitated by the GALILEO initiative. GALILEO, A World Wide Web-based virtual library (http://www.galileo.peachnet.edu) provides access to multiple information resources, including secured access to licensed products. Institutions that participate may access over 100 databases indexing thousands of periodicals and scholarly journals. Over 2000 journal titles are provided in full text. Other resources include encyclopedias, business directories, and various government publications. Students developed precision search strategies and practiced marking and e-mailing citations and full-text documents.

Research Questions

The purpose of the study was (a) to evaluate the use of a Web-based course tool to deliver instruction dealing with online search strategies; and (b) to determine if Web-based distance education was an effective means of helping school library media specialists develop the skills needed to successfully model information literacy skills for teachers and students. The research questions:

1. Is Web-based course delivery an effective way to prepare school library media specialists in the instructional uses of Internet information resources?
2. Is Web-based instruction a successful medium for helping school library media specialists develop skills in searching and evaluating the Georgia Library Learning Online (GALILEO) databases?
3. How do participants react to Web-based instruction?

Research Design and Methodology

Qualitative research uses a naturalistic approach that seeks to understand phenomena in context specific settings. The study employed the techniques and methods associated with qualitative research. Purposive sampling is based on the assumption that the researcher wants to discover, understand and gain insight regarding a phenomenon; therefore, the researcher selects a sample from which the most can be learned (Merriam, 1988). For this study the subjects were the graduate students taking the course. A limitation of this study is the sample size; there were only three graduate students in the course. Knowing that the enrollment in the Educational Specialist Program was going to significantly increase the following year, the course was offered despite the small class size. This afforded an opportunity to pilot the course before officially listing it as a Web-based distance education course.

Sampling Error

There are three types of sampling error that can occur in qualitative research. The first relates to distortions caused by insufficient breadth in sampling; the second from distortion introduced by changes over time; and the third from distortions caused by lack of depth in data collection (Patton, 1990). The study is limited by the first, breadth in sampling.

Data Collection

The sources of data were logs from the synchronous chat area, bulletin board postings, e-mail communications, course usage statistics, student projects and assignments, and a focus group session. Collection of data took place throughout the fifteen-week semester. Each chat session was approximately two hours in length. Since WebCT automatically saves a log of the sessions to the chat directory, entire transcripts of the discussion sessions were available for data analysis. Student could access the chat log archives from the WebCT home page for the course.

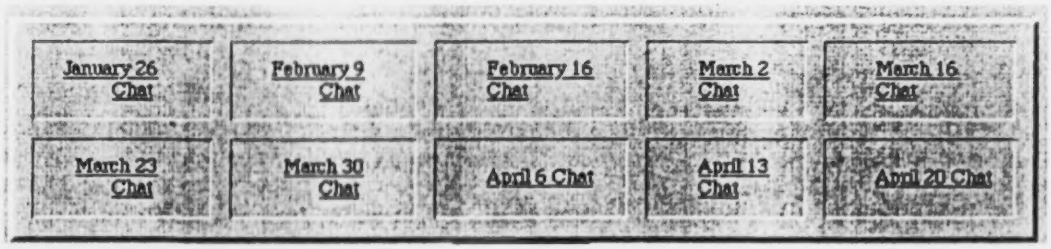

Figure 3. Chat Logs for ELMT 8370

The data in qualitative research encompass the things that are going on the environment being studied; the phenomena being observed; and the perceptions of the participants. Meeting on campus for the final session, the group discussed the course content and the technical issues involved in accessing Web-based course. Thirteen focus questions guided this discussion. The session was audio taped and provided additional data for analysis.

Data was sorted into categories, depending on what themes, words, behaviors, patterns, or other phenomena emerged. Certain tentative themes began to emerge early in the analysis of the data. The categories changed, or were dropped, depending on whether new data supported or contradicted the direction of the categories. The initial research questions guided the classification of the themes.

Results

The findings of the study as they relate to the research questions:

Is Web-based course delivery an effective way to prepare school library media specialists in the instructional uses of Internet information resources?

Web-based course delivery is probably the only way this course should be offered. A Web-based learning environment allowed the students to explore online reference resources available on the Internet. Students developed powerful search strategies and clearly demonstrated their ability to locate and use the information they retrieved. Creating guides in the form of Web pages allowed the students to synthesize and share their knowledge with others. The objectives of the course were achieved. The course could be offered in a computer lab with Internet access, but the experiences would be extremely different. The participants agreed that the topic of the course and the instructional delivery were positively matched.

Is Web-based instruction a successful medium for helping school library media specialists develop skills in searching and evaluating the Georgia Library Learning Online (GALILEO) databases?

Although all the students had used GALILEO before enrolling in the course, they developed additional search strategies related to refining and narrowing their searches. One student had always used the ERIC databases, but was unaware of the availability of the full-text articles available in the Periodical Abstracts and EBSCO databases. Electronic mailing of citations and/or full-text articles was another new area for two students. Students limited searches to publication types such as editorials, software reviews, ethnic recipes, etc. Participants had a much easier time locating information in the proprietary databases in GALILEO, as opposed to trying to locate information from Internet sites.

How do participants react to Web-based instruction?

The participants had positive attitudes towards Web-based instruction in general. Eliminating the time spent driving to class and back was considered a big advantage and students loved being able to communicate from home. On another level, they missed seeing each other. A significant amount of time was spent socializing, checking up on one another, and discussing their day jobs.

Some additional comments concerning the delivery system were:

"I have enjoyed using WebCT in the class." "The interface, links, and icons are clearly presented." "I sincerely have no complaints with regard to the application or its interface."

Another student commented:

> I think WebCT is a wonderful way for the instructor to share information with the students in an asynchronous manner. I even think the chat room is a great place for students to meet and work on a project (it beats those 2 o'clock on Sunday afternoon meetings at the library hands down!). But I think extended and regular distance learning segments are better held in voice-permissive environments such as video conferencing or tools like NetMeeting. An advantage I can see WebCT having over these two methods is the archive function that saves the full chat (but then again, NetMeeting has a chat feature and an archive function).

Conclusion

From this limited initial study, there is no clear evidence to support specific conclusions at this time. However, several themes do emerge. The students felt the content and the delivery system were well matched. Their ability to locate electronic information was clearly confirmed and the projects they uploaded to the student presentation area demonstrated their ability to instruct and guide others in retrieving and using electronic information. The discussion or chat logs revealed that students needed time to communicate about matters other than the course content. Students indicated that they missed face-to-face social interaction with each other. They also expressed concern about the different levels of expertise that future students might have when entering the course, and suggested additional instructional time be provided for those who needed help in developing some basic technology skills, especially Web-editing skills.

Discussion

Recommendations for the instructor

- Allow adequate time to design, develop, and upload course materials.
- Develop course materials in html format, using Web-editing software such as Netscape Composer. Learning html code is not necessary.
- Pilot the course with a small group of students before officially offering the Web-based course.
- Plan a session on campus for students who need to learn how to use Web-editing software to create Web pages.

Caveats

- Advise students that some computers are not powerful enough to handle Web-based delivery of instruction. Computers must have java-capable browsers. One student came to campus to access the course from a computer lab because she could not access the program from home.
- Synchronous chat is not possible from some school networks due to administrative security concerns. Firewalls prevent using the chat facility.
- Learning to use the courseware and developing the course materials can be time-consuming.

Information Technology and the School Library Media Specialist

School media specialists have access to a large population of users. Ninety-six percent of public schools in the United States have library media centers while eighty percent of private schools have library media centers (U.S. Department of Education, 1998). School library media specialists have the potential to make a significant impact on the instructional environment in our schools, especially in the area of electronic information literacy. The technological changes in our culture and schools must be reflected in the education of school library media specialists. As the depth, diversity, and value of Web-based information continue to grow exponentially, professional organizations are developing information literacy standards for student learning. The following statement from the American Association of School Librarians applies not only to students, but to educators as well, especially school library media specialists.

> Today's student lives and learns in a world that has been radically altered by the ready availability of vast stores of information in a variety of formats. The learning process and the information search process mirror each other: students actively seek to construct meaning from the sources they encounter and to create products that shape and communicate that meaning effectively. Developing expertise in accessing, evaluating, and using information is in fact the authentic learning that modern education seeks to promote (Marcoux, 1996).

Notes

1. WebCT screen shots used with permission.

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The Use of the Internet in School Libraries

An International and Comparative Survey

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This research sought to gain an impression of the use of the Internet by school librarians in the United Kingdom and South Africa. The research questions addressed the issues of access to the Internet by school librarians, the purposes for which school librarians used email and the Web, the demand from teachers for access to the Web, the key issues identified by school librarians in relation to the use of the Internet in schools in the next five years, and any differences between the responses of librarians from the two countries. The key findings were that there was limited access to the Internet in the respondents' schools; school librarians used the Web mainly for curricular material; science and geography departments were the heaviest users of the Web; and the key future issues identified included information skills, cost, inservice training, and the role of the school librarian. There were no significant differences between the two countries studied.

Introduction

The availability of the Internet and especially the World Wide Web (Web) in schools across the world has transformed access to curriculum-related information resources. In all of the developed countries, governments are investing heavily in providing schools with access to the Internet with initiatives such as the United Kingdom's "National Grid for Learning" (Department for Education and Employment, 1997) which will ensure that by the year 2002, all schools will be broadband connected to the Internet and all teachers and pupils will have their own email addresses and file space. This vast increase in the availability of electronic information resources can be seen as both an opportunity and a threat for school librarians. The opportunity is to manage this new information resource to enrich the school curriculum and to be a key player in the school's Information Technology (IT) development. The threat lies in the possibility that the school librarian will NOT be seen as an important contributor to the school's effective use of IT and will be marginalized.

Writers such as Herring (1998), Clyde (1997), Kulthau et al. (1997), Valauskas and Ertel (1996) have identified a range of issues that affect the use of the Internet in school libraries including: teaching information skills in relation to use of the Web, integrating use of the Web into the school curriculum, evaluating websites, acceptable use policies, censorship and the Web, and the use of email and listservs. There is also an increasing number of articles relating to the use of the

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Internet in journals such as *Emergency Librarian* [now *Teacher Librarian*], *School Library Media Quarterly* [now replaced in part in print by *Knowledge Quest* and in part online by *School Library Media Research* <http://www.ala.org/aasl/SLMR/index.html>] and *School Libraries Worldwide*. An increasing range of educational periodicals across the world also deal with issues relating to the Internet, often in the form of an IT column. There is, therefore, no shortage of opinion on how the Internet should be used in schools and a range of case studies can be found in journals such as the United Kingdom's *Computers don't bite*.

There have been surveys of Internet use by schools and school librarians but many of these remain unpublished. The present survey was undertaken to gain an impression of what could be considered as the state of the art situation in two countries. The value of this study lies not only in the quantitative and qualitative data which emerged from analysis of the questionnaire responses but in the issues that it highlights, the comparison with existing literature, and the possible future use of a similar study in the countries covered here as well as in other countries.

Research Questions

The purpose of this study was to examine the use of the Internet by school librarians in the United Kingdom (UK) and in South Africa (SA). The study sought to focus on the following research questions :

- What kind of access did school librarians have to the Internet?
- To what extent and for what purposes did school librarians use email and the Web?
- What was the demand from teachers for access to the Web?
- What did school librarians identify as the key issues in the use of the Internet in the next 5 years?
- Were there any significant differences between the two countries studied?

Scope of the study and sampling

The original intention of this study was to survey UK school librarians attending the annual School Libraries Group (SLG) conference in Cambridge in April 1998, as the delegates represented a sample of the total school librarian population in the UK. The inclusion of the South African school librarians followed an invitation to the author to be the keynote speaker at the biennial Independent Schools Conference in Johannesburg in April 1998. This provided an opportunity to compare results from both countries in order to identify similarities and differences. The survey aimed to cover school librarians' access to the Internet and their use of email and the Web.

Using the delegates at the two conferences can be viewed as studying a sample of school librarians in both the UK and South Africa and *may* allow some generalizations to be made. Bouma and Atkinson argue that "the manner in which the sample is drawn determines to what extent we can generalize from findings" (Bouma and Atkinson, 1995, p. 138). This author's approach can be seen as using purposive sampling, and Bouma and Atkinson state that purposive sampling is appropriate where researchers "using their own judgement and intuition" select appropriate groups to be studied. However, they caution that "if a purposive sample is studied, only tentatively suggested generalisations can be made" (Bouma and Atkinson, 1995, p. 143). It is important to recognize that the school librarians attending both conferences are not necessarily a representative sample of the total population of school librarians in each country for the following reasons:

- While the UK sample contains school librarians from both the state and independent sector, those attending the annual SLG conference could be viewed as non-typical in that conference attendees may be seen as more motivated and more initiative driven and therefore more likely to have gained Internet access in their schools. In the author's experience, delegates at this conference *do* represent a fair cross section of the UK school librarian population in that the conference delegates come from a range of well-funded, moderately-funded, and poorly funded schools.
- The South African conference consisted almost entirely of school librarians from independent schools, all of which are well funded in relation to technology. Thus the South African sample can be seen as representing a fair cross section of South African *independent* school librarians but not as a sample of South African school librarians as a whole.

Methodology

The author chose to issue a questionnaire to delegates at both conferences. To ensure a high response, delegates filled in the questionnaire immediately after it was issued. Authors such as Czaja and Blair (1996), Alreck and Settle (1995) and Fink (1995) identify the use of questionnaires as a sound research method for gaining information from a defined population. The analysis of the responses was done using Pinpoint, and the results are presented in narrative and tabular form.

Results

The research questions posed above provided the basis for analyzing the results, with comparisons between the two countries made where appropriate. Tables are used to illustrate findings in relation to some topics.

What kind of access did school librarians have to the Internet?

The results showed that 93% of UK and 87% of South African (SA) schools had access to the Internet and those who did not have access expected to be connected within one year. However as shown in Table 1, the very high percentage access rates for the schools were not matched by very high access from the school library:

Table 1: Internet access in the school library			
Country	Yes %	No %	No answer %
UK	64	27	8
SA	61	30	9

School librarians in this survey had access to email and the World Wide Web (WWW) and also to other online services, as shown in Table 2.

Table 2: Access to email, WWW and other online services				
Country	Email %	WWW %	Others %	No answer %
UK	75	82	16	16
SA	78	72	7	20

The online services which were accessed by only a small percentage of respondents included *Reuters*, *FT Profile*, *Britannica Online* in the UK and *Reuters*, *Sabinet* and *Britannica Online* in South Africa.

In relation to use of the Internet in the school as a whole, there were very similar responses by both sets of librarians, and it is interesting to note that a much smaller percentage of administrative staff in schools had access than senior management, teachers and pupils, as shown in Table 3.

Table 3: Access to the internet in the school					
Country	Senior Mgt %	Teachers %	Admin Staff %	Pupils %	No answer %
UK	71	77	59	77	15
SA	72	80	57	80	20

Access to the Internet is a very recent phenomenon in both UK and SA schools. Table 4 shows that most schools had no access before 1996 and only in 1997 did a majority of the school surveyed have access.

Table 4: Year of access to the Internet								
Country	1998%	1997%	1996%	1995%	1994%	1993%	1992 and earlier %	No answer %
UK	5	37	30	4	4	4	0	16
SA	9	41	17	2	9	0	0	22

The questionnaire asked respondents to indicate who had initiated the development of access to the Internet in the school, and the results showed that school librarians were involved in gaining access in 25% of the UK respondents' schools and in 24% of the SA respondents' schools. These percentages may be higher if school librarians served on an IT/Resources committee since in both countries such a committee was identified as the initiator. These results are very encouraging in that they demonstrate that the school librarians in the schools concerned were playing a leadership role in introducing new technology.

The form of access differed between the two countries. In the UK, 60% of the respondents' schools had modem access and 15% had broadband access, whereas in the SA respondents' schools, 33% had modem access and 26% had broadband access. This difference a temporary one, however, as Table 5 shows that a significant proportion of UK respondents' schools were likely to have better access within one year. While the UK schools might narrow the difference in better access, Table 5 also shows that in most respondents' schools, there would be no improvement.

Table 5: Likelihood of improved access within one year			
Country	Yes %	No %	No answer %
UK	32	51	17
SA	4	70	26

To what extent and for what purposes did school librarians use email and the Web?

The study sought to determine the school librarians' use of the Internet not only in relation to their use of the Web but also how they used email. Email can now be viewed as a professional resource that school librarians can use for providing services to teachers and pupils as well as for contacting fellow professionals. It is certain that in the future all school librarians, teachers and pupils will have personal email addresses. Indeed, the UK's National Grid for Learning has this as one of its stated aims (Herring 1999). Table 6 shows that, at the time of the study, fewer than half UK respondents had a *personal* email address whereas the SA figure was significantly higher. The results indicated that a further 27% of UK respondents shared an email address with others as did a further 24% of SA respondents.

Table 6: Personal email addresses			
Country	Yes %	No %	No answer %
UK	38	52	10
SA	59	28	13

Table 7 shows how often the respondents checked their email, and the relatively low percentage of respondents checking their email at least once a day may be directly related to the access to email that the respondents had when the email address was shared. It may also reflect a situation where the culture of using email as a daily means of communication within and outside the school had not been established.

Table 7: How often email was checked				
Country	More than once a day %	Once a day %	Less than once a day %	No answer %
UK	32	15	40	14
SA	43	11	24	22

Respondents were asked with whom they had email contact, both within and beyond the school, and the results showed that the main contact in school for UK respondents was with teachers and senior staff, whereas for SA respondents the main contact was with pupils and teachers. These results most likely reflect the greater access to email by pupils in SA independent schools. Jervis and Steeg (1998) reported in their study of UK schools that only 28% of pupils had access to individual email accounts.

The use of email to contact people outside the school showed that both UK and SA respondents made most contact with other school librarians. Other contacts included friends, relatives, other libraries, and commercial organizations. One of the main uses of email for school librarians in North America and Australia is to participate in listservs such as LM_NET, ATLC FORUM and OZTL_NET. The respondents to this survey did not contribute to listservs in a significant way, with only 3% of UK respondents and 17% of SA respondents stating that they used a listserv. The key reasons for this are the absence of a UK listserv for school librarians and the fact that a new listserv for SA school librarians had only been recently established. This author as set up a new listserv entitled SL_NET for UK school librarians and membership is growing steadily.

When asked about the main benefits of using email, there was general agreement amongst UK and SA respondents that the key advantages of email included speed, cost, efficiency, access, networking, convenience, duplication, easy communication, global communication, instant communication and information about the World Wide Web, and overcoming professional isolation. In relation to problems identified in the use of email, there was again general agreement amongst both UK and SA respondents in that they identified junk email, address problems, server problems, lack of response, and the time consuming nature of email use as the key issues to be explored.

The survey revealed an encouragingly wide use of Web by school librarians in both countries. Table 8 shows the purposes for which respondents used the Web:

Table 8: Use of the Web

Country	Information for yourself %	Information for teachers %	Information for pupils %	Other purposes %	No answer %
UK	62	66	66	32	26
SA	59	61	59	20	33

Respondents were asked to provide examples of use of the Web in relation to the above purposes and there was general agreement that the key uses of the Web for information for the school librarian were related to professional development, curricular topics, and books. Under "Information for teachers" respondents agreed in that all topics identified were related to curricular topics such as the industrial revolution, politics, European information, textiles and poetry for UK respondents and El Niño volcanoes, poetry, business economics, apartheid, and films for SA respondents. Information for pupils derived from the Web was also curriculum related and included topics such as environmental issues, Japanese art, salmonella, and euthanasia for UK respondents and children's authors, volcanoes, geological disasters, and river flow statistics for SA respondents.

What was the demand from teachers for access to the Web?

The survey sought to identify the use of the Web not only by school librarians but also by their teaching colleagues. Table 9 shows the extent of use by teachers in departments, and it is interesting to note that there was a significantly higher use by teachers in SA schools.

Table 9: Teachers' use of the World Wide Web in their departments

Country	Yes %	No %	No answer %
UK	41	32	27
SA	61	13	26

Respondents were also asked to identify which departments were the heaviest users of the Web in the school in both the department and in the library. It was clear from the responses that in both the UK and SA, geography and science teachers made much more use of the Web than other teachers. Amongst other departments, business studies, languages and English were viewed as moderate users by UK respondents, as were English and history by SA respondents. The key reasons identified by both UK and SA respondents for heavier use by some departments than others were teacher enthusiasm, IT literacy and the appropriateness and currency of the information available.

Interestingly, 56% of UK respondents and 50% of SA respondents stated that there had been an increase in the use of the library by teachers as a result of Web access and that the departments whose use of the library increased included (in the UK) science, geography, modern languages, and history and (in SA) science, geography, biology, and technology. This is an encouraging response in that it indicates not only that the Web can be used by school librarians as a way of attracting teachers to the library but also that this may facilitate better integration of online and print resources.

What did school librarians identify as the key issues in the use of the Internet in the next 5 years?

The survey sought to identify the respondents' views on the future use of the Internet in UK and SA schools, especially the use of email and the Web. The questionnaire first asked how respondents saw the use of the Internet expanding in the next 5 years. There was general agreement amongst both UK and SA respondents that the use of email would greatly expand in that all staff and pupils would have personal emails, there would be much more access to email in the school as a whole and in the library in particular, there would be much more contact with other schools and school librarians, and there would be a great improvement in communication generally but especially in relation to professional contacts. There was also general agreement that the use of the Web would greatly expand because of greater access for both staff and pupils and that this would lead to greater use of Web resources in the curriculum, more emphasis on information skills, improved training for staff and the development of a school intranet.

The questionnaire then asked respondents to identify the key issues respecting the future use of the Web as an information resource. Both UK and SA respondents identified the following key issues: information skills development, the role of the school librarian as an information professional in the school, censorship, access, control, time management, and pupil supervision. UK respondents also identified demand from teachers and pupils, INSET for teachers, establishing an intranet, IT policy development, and possible decline in library use as related issues. SA respondents identified promotion of the Web, plagiarism, support, finance, downloading, flexible learning, and management of resources as related issues. It was very clear that the issues surrounding Internet development were of great concern to the respondents as this question was answered in much more detail than any other in the questionnaire.

The key results from this survey show that, while almost all schools have Internet access, there is no Internet access in one third of school libraries, most schools access the internet via a modem, fewer than half of school librarians in the UK had a personal email address, very few school librarians in either country accessed a listserv, school librarians used the Web mainly to gain information for themselves or teachers and pupils, and that this information was curriculum related. In both countries, the geography and science departments were the heaviest users of the Web. The key issues facing school librarians in the using the Web over the next five years included teaching information skills, cost, inservice training, censorship and the future role of the school librarian as an information professional in the school. In general, there was little difference between the two countries studied.

Conclusions

This study makes a useful contribution to the research relating to Internet use in schools and in school libraries. The research questions attempted to provide evidence of Internet use by school librarians in UK secondary schools and SA independent schools. While it cannot be argued that the results can be generalised to *all* UK secondary and SA independent schools, this author would argue that the respondents represented a valid sample of the total population in each category and that therefore some general conclusions can be drawn from this study in relation to most schools in each category. The study represents a snapshot of what progress had (and had not) been made in relation to the use of the Internet by school librarians in 1998, and it clearly shows that use of the Internet in schools was patchy, with some school librarians having full access (e.g., broadband connection and personal email address) and others having limited access. Of particular interest are the views of school librarians on the expansion of Internet use in their schools and the potential problems identified. Future research in this area could either replicate this study in the countries concerned or in other countries or it could focus on the *actual* changes in Internet use by school librarians over a certain period.

Comparing the results of this survey to the existing literature, it is clear that the introduction of the Internet into schools has had a major effect on the role of the school librarian as educator and as manager of the school's information resources. It is also clear that government initiatives will radically improve access to the Internet in the future and this will lead to *more* use of the Web in the school and greater demands on the school librarian from subject teachers. It is interesting to note that the issues identified by the school librarians in this study are the same as those discussed in the literature by authors such as Herring (1999), Kuhlthau (1997), and Clyde (1997).

This survey highlights a number of key implications for school librarians. First among these is that school librarians must play a significant role in deciding how Internet resources can best be exploited in the school to complement other resources. School librarians must keep current with developments in this area by either education or inservice training. School librarians must develop and implement effect information skills programs in their schools in order to ensure that pupils become effective Internet users. The important areas not covered by this survey relate to the development of intranets in schools and the use of instructional websites in the school curriculum.

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The School Library Web Site

On the Information Highway or Stalled in the Carpark?

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Based on research conducted by the author in 1996 and 1999, this paper discusses theoretical issues and provides an overview of the purposes for which school libraries are creating and maintaining home pages or Web sites. The research has implications for those who are planning a Web page or site for their school library/media center; among other things, it provides information about what other school libraries/media centers have done and suggests some pitfalls that might be avoided. It also suggests areas for further study, notably the possible development of a model that might be used for the evaluation of school library Web sites.

Background

By 1995, some school libraries were establishing home pages on the World Wide Web, and this activity increased in 1996; a few school libraries even had small Web sites consisting of several pages of information and links to Internet resources. Reflecting these developments, two international directories of school library home pages were created by school library media specialists in the United States: Peter Milbury's "School Library and School Librarian Web Pages" (now called "K12 School Library Web Pages Maintained by Their Librarians"); and Linda Bertland's "School Library Pages". Through them, school librarians could explore the pages that had been developed by other school librarians to see what was being done in schools similar to their own and to collect ideas. However, even a cursory view of the school library Web pages listed by Milbury and Bertland showed a wide range of style, content, and level of Web page development skills, and suggested that the page developers had very different ideas about the aims and purposes of a school library Web page or Web site.

To test this impression, a formal small-scale investigation of school library Web pages was carried out by the author in the second half of 1996 (Clyde, 1996a; Clyde, 1996b). This investigation took the form of a content analysis of 50 school library home pages or Web sites, the aim of which was to identify the characteristics and features of school library home pages/sites, and the kinds of information that school libraries were providing through their pages. The research was purely descriptive -- an attempt to provide a picture of the then current "state of the art" in relation to school library Web pages/sites. As such, it served a useful purpose in that it established a base line against which to measure future developments. It was also useful for trainers (including the author) who were conducting Web "pagemaking" courses for school librarians.

The Web pages/sites for inclusion in the study were located using the directories of Milbury and Bertland. A little over half of the school libraries in the sample were in the United States, with the rest coming from eight different countries: Australia, Canada, Sweden, Singapore, Iceland, Kuwait, New Zealand, and Norway. There were many more secondary/high schools than elementary/primary schools, with some middle schools, K-12 schools, and special schools. All of the pages included in the study were accessed on the one day (19 August 1996) and a matrix was used to record the features of each page/site. Table 1 provides a summary of the content analysis of the pages/sites.

Table 1: Contents of School Library Web Pages/Sites 1996 (n=50)

FEATURE	No. OF PAGES/SITES
Name of school and library	41
Links to selected Internet resources/sites	31
Information about the school library	29
Interactive email content address	28
Links to a school home page	24
Date of the last update of the page/site	19
Links to Internet search engines	15
Address of the school/library	14
Counter	11
Information about Internet projects undertaken in/through the library	9
Research skills information, e.g., the "Big 6", "Be Definite", research guides	8
Links to Internet resources for teachers	8
Links to Internet resources for school librarians	8
List of CD-ROMs in the school library	8
Book reviews, lists of books recommended by students, school book club choices, etc.	7
Photograph of the school library	6
Information (or links to information) about citing Internet resources in bibliographies	6
Links to HTML guides or information about creating a home page	5
Links to resources about the local area/region	5
News about the library or library activities	4
Information about the Internet for library users	4
Internet tutorial	4
Online reference desk for email inquiries	3
Information about Internet access and policies in the school/library	3
The library rules	2
Electronic magazines	1

The design, format, and content of these school library Web pages/sites did indeed suggest that school libraries may have very different aims in developing their pages. However, some pages had no readily-discernable aim or purpose, and only a few actually identified the intended audience (either by a statement of purpose or by clear implication). Seven had been developed for students in the school, to help them to find Internet resources, or to help them to search for materials, while one was aimed at teachers in the school. One was developed for "students, teachers, and visitors" -- a diverse group with very different needs; another was for "students, teachers and parents". Six were clearly intended for online visitors from outside the school, in that they were little more than selections from a school prospectus transferred from print to the Internet. The intended audience for the other 34 school library pages/sites was impossible to discern from the pages themselves, and it may be that they had been created with no particular audience in mind. It is very difficult to select and present information to meet the needs of users if neither the potential users nor their needs have been identified, and so these pages tended to include a miscellany of material and links, at a variety of levels, usually without any indication of purpose and without any linking theme. It is interesting that eight of the pages provided links to Internet resources for school librarians, suggesting that in some cases the school library staff themselves were among the main users of the pages.

Just as the intended audience for these school library Web pages/sites (where known) was varied, so too were the contents (see Table 1). What is most surprising here is that nine of the Web pages/sites did not include the most basic of identifying information, the name of the school and the library. Although 28 home pages provided an interactive email address for contact with the library staff, only 14 provided the street address of the school library, and some did not even name the town, state/province, or country. Some 29 of the 50 pages/sites provided other information about the school library, this material ranging in length from a few sentences to detailed descriptions of buildings, collections, services, and policies. Six incorporated a photograph of the school library and four had photographs of the school library staff, but more than one-third had no visual information at all (beyond decorative lettering and/or graphics). While the information provided on several pages indicated that the school library had a computer-based catalog, none of the Web pages provided search access to the catalog, though one Australian school library page showed this as a future development.

One of the more common features of the school library pages/sites was the provision of links to resources on the Internet (31 of the 50), though the number of links varied greatly from school to school. Sometimes there was just a plain list of links, perhaps with a short description or annotation for each link. However, some school libraries seem to have given considerable thought to how these links would be presented. The strategies adopted included listing by broad topic, by school subject, by the name of the course for which they would be used, by the curriculum unit, by the actual assignment or project for which they would be used. Occasionally another classification scheme was employed -- for example, a geographical arrangement (such as "resources in the school", "resources in our local community", "resources in our state", "resources in other places"), or even an arrangement based on the main Dewey classes. There appears, then, to be very little agreement about the most appropriate or effective ways in which to organize links on Web pages created for school libraries. This is clearly an area in which further work is needed, and it was anticipated that a follow-up study might identify trends since 1996.

Just under one-third of the pages were apparently designed (at least in part) to help school students (and sometimes their teachers as well) to use the Internet and to incorporate information from the Internet into their work. Eight pages/sites had (or had links to) information skills resources, usually presented for students; the most popular was the "Big 6" information skills sequence developed by Michael Eisenberg and Bob Berkowitz (1990) in the United States, but two Australian pages/sites presented information skills guides developed in Australia. To assist students to use Internet resources appropriately, six of the pages/sites had information (or links to information) about citing Internet resources, and general information about preparing bibliographies. Four pages/sites had Internet tutorials designed to help students to understand the Internet and to use it more effectively; one of these presented the material in an interesting way in the form of training for an "Internet Driver's License".

The 1996 content analysis gave an indication of the wide range of possibilities for school library Web page/site organization and the information that might be provided through Web pages. As such, it was a useful source of ideas for school librarians who were planning to take their school library "onto the information superhighway" by developing a Web page or site. However, the analysis also gave an indication of how many of the school library Web pages/sites were falling short of even the most basic expectations in August 1996, effectively being "stalled in the carpark" before the access road to the information highway. It also suggested that many did not reflect the educational function of the modern school library/media center.

The Literature

The 1996 study described above was planned and carried out at a time when the professional and research literature related to the topic was sparse. Monitoring of the literature has continued in the period from 1996 onwards; while the situation has improved, there are nevertheless considerable gaps, and the professional literature related to school library Web pages/sites far exceeds the research literature. This is probably understandable when developments in technology (and the adoption of the technology in schools) are occurring at such a fast pace.

A number of books have been published in the last three or four years that provide information for teachers and others who are developing school Web sites (see, for example, Classroom Connect, 1998; Hixson & Schrock, 1998; Barron, 1997); these tend to focus on the curriculum applications of Web pages, or "Web publishing as a learning tool" (Hixson & Schrock, 1998). At the same time, articles and books have appeared to support the work of librarians who are developing Web sites for their libraries or information agencies (see, for example, Garlock & Piontek, 1996; Champelli & Rosenbaum, 1997). The latter tend to see the Web site as "a promotional tool for the library and its parent organization" (Boudreau, 1998, p.264), or in terms of library functions such as reference work, catalog access, or publishing; educational applications are seldom mentioned as a priority. School library needs have tended to fall somewhere between the educational or curriculum-related sites and the library-related sites, sometimes reflecting aspects of both, as the 1996 study suggested, though without any strong trends emerging at that time. This raises the question of whether or not school libraries have unique needs in terms of Web page/site advice, beyond that written for teachers of for libraries in general. The results of the 1996 study, suggest that some guidance is needed, though more work would be needed to confirm the nature of the needs.

The articles that are available tend to reinforce the general impression of differences between advice given to librarians and advice given to teachers. Guides for teachers (for example, School Web Site..., 1998) suggest that student work should form the basis of a school Web site. Advice for librarians, on the other hand, tends to focus on provision of quality information (National Library of Australia, 1999; Raitt, 1998), reference assistance and library guides (Cooper, 1997), and provision of access to databases (Xiao, Mosley & Cornish, 1997), among other library- and information-related applications. Articles written specifically for school librarians tend to reflect both the educational aspects and the library- and information-related aspects: for example, Hewer (1998) emphasizes publicity and public relations ("raising your library's profile within your school and beyond, while emphasizing the wide reaching and influential role of the teacher librarian"); meanwhile, Mitchell (1998) concentrates on the school library Web site as a way of helping teachers and students to navigate the Internet and find curriculum-related resources. Clearly, we cannot look to the professional literature for consensus on school library Web pages.

Two very different research studies highlight both the diversity in school Web sites and library Web sites, and, in many instances, their lack of focus. The report of a descriptive pilot study of school Web sites in the United States (Gray, Romano & Clark, 1998) noted that "unfortunately, the impetus to create school Web pages has preceded the development of a theory governing their contents"; further, "in the brave new world of instantaneous, world-wide digital communications, the first impression is one of school Web site developers who do not seem to know why they've put their sites there. Or, if they do know why, they're apparently lacking in the knowledge of how to achieve their goals" (Carlson, 1998). Not only that, but "whatever the numbers, a tour of school Web sites leaves the impression that they are mostly inadequate or counterproductive, with a lot of time, energy, and in some cases, money downright wasted" (Carlson, 1998). In 1998, Leticia Morito Lopez (1998) carried out a comparative study of Icelandic and Spanish library Web sites, based on the content analysis methodology developed by the author for the 1996 study of school library Web pages/sites. One of the problems she identified was "confusion over the concept of the home page"; another was a "lack of strategic planning" -- when librarians are developing a Web site, "they don't usually think about what they really want to do with the site". She notes that librarians should "know what they want to transmit with their new site, the potential users who might consult the pages, and the aims in creating this new service". While her remarks are directed at libraries in general (reflecting the basis of her study), they could also be directed to the school libraries whose Web pages/sites were included in the author's 1996 study.

With no consensus on what a school, library, or school library Web site should be like, it is not surprising that there is a wide range of views about, and strategies for, Web page/site evaluation. Librarians (including some school librarians) tend to see Web site evaluation as an extension of the evaluation of library resources in other formats (including books and audiovisual materials). Consequently, their schemes for Web page evaluation usually reflect traditional library criteria such as "authority", "reliability", "accuracy", "recency", "ease of use", and "appropriateness for the needs of users" (see, for example, ICONnect, 1999; Caywood, 1999; Schrock, 1998/1999; Everhart, 1998). Evaluation strategies designed for teachers, on the other hand, tend to emphasize curriculum-related traits or applications in the evaluation of Web pages/sites. For example, the Blue Web'n Web site evaluation rubric (used for evaluating sites being considered for the Blue Web'n searchable database of educational Internet resources) includes a section on "learning process", covering, among other things, "higher-order thinking". The "Evaluation Rubrics for Websites" developed for the Loogootee Community Schools in Indiana focus on the assessment of Web pages created by children as part of their school work. The Website Motivational Analysis Checklist (WebMAC) (Small, 1997), an instrument designed for assessing "the motivational quality of World Wide Web sites" for education, is based on John M. Keller's ARCS Model of Motivational Design (1987a; 1987b; 1989), Taylor's Value-Added Model

(1986), and research on relevance and information retrieval (Schramber, 1994); it included (at the developmental stage in 1998) some 60 items in four basic categories: "engaging", "meaningful", "organized", and "enjoyable". The VOICES model for school Web site evaluation (Rutkowski, 1997a; Rutkowski, 1997b), on the other hand, incorporated the following "equally-weighted criteria": "vision", "originality", "integrity", "community", "empowerment", and "structure". Not all of these criteria would be appropriate for many school library Web pages/sites, depending on the aim or purpose of the pages/site. The author's own teaching Web page on "Evaluation of Resources on the Internet" (Clyde, 1999) highlights the diversity in criteria, strategies, and tools for evaluation of Web pages/sites.

It would appear that current descriptive research that identifies the purposes for which school libraries are creating Web pages/sites, and the information and resources provided through those pages/sites, is necessary before tools that are designed specifically for the evaluation of school library Web pages/sites can be developed. While tools for the evaluation of school library Web sites might be based on current educational and librarianship tools, it is already clear, from the author's 1996 work, that these do not represent the whole answer. School libraries have functions that are related to both librarianship and education but transcend both. Their Web sites seem to reflect this, at least in those cases where the purpose is clear.

Research Questions

The 1996 study identified many problems associated with school library Web pages/sites, including a lack of appreciation of what a school library Web site might achieve and how such a site should be developed. Has the situation improved since 1996? Have school library Web pages/sites become more sophisticated in their aims, purposes, design, organization, and content? Are they now, as a whole, more closely identified with the educational functions of the school library than they were in 1996?

The online directories of school library Web pages indicate that considerably more school libraries have established a Web presence since then: in August 1996, Milbury's directory listed 55 school library home pages that were maintained by school librarians, of which only 39 were available or responding on the day of the survey, whereas in August 1998, there were 191 listed (an increase of 347.2% over two years). The same kind of increase is apparent in Bertland's directory, but because her criteria for inclusion are wider (the school library Web page does not have to be maintained by the school librarian), she listed a larger number of pages/sites than Milbury in both 1996 and 1998. However, an increase in numbers is no guarantee of an overall improvement in presentation or content.

Consequently, a decision was taken to extend the 1996 study into a longitudinal study covering three years, 1996 to 1999. Ongoing developments are being monitored, and a second content analysis of school library Web pages/sites will be undertaken in August 1999. The longitudinal study is designed to address the following research questions:

1. Have the Web pages/sites that were included in the 1996 study been developed further or improved over the three years?

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2. What is the current "state of the art" (as of August 1999) in terms of school library Web pages/sites?
3. Has there been an overall improvement in the school library Web pages/sites over the three years?
4. Are there any differences in aims, purposes, design, organization, and content of school library Web pages/sites between 1996 and 1999?
5. Have any new ways of organizing links on school library Web pages emerged over the three years? Is there any evidence of a developing consensus about the best way or ways of organizing links for effective use?

Methodology

The research outlined in this paper is designed to be descriptive. The basic aims are to identify the current status of school library Web pages/sites and to compare this with the results of the 1996 study to identify changes over time. Given these specific aims, and a topic where little baseline information is readily available, descriptive research techniques are the most appropriate for the study. Researchers looking at Web pages in other fields have come to similar conclusions. For example, Cano and Prentice (1998), who studied Web pages created by or for the tourism industry in Scotland, used a methodology that "consisted of the identification of sites, the development of a content-based classification scheme, and the detailed examination of sites..." to present an overview of "the availability of homepages for the promotion of tourism in Scotland". Gray, Romano and Clark (1998) used a statistically-based content analysis of a random sample of school Web sites in the United States "to establish a baseline describing the state of current practice". However, just as Cano and Prentice identified policy and research implications associated with their findings, and Gray, Romano and Clark identified the need for "effective models" for Web site development in schools, it is anticipated that the results of this longitudinal study of school library Web pages/sites will provide a basis for development work and further research in the future.

As for the 1996 study, the main research methodology to be employed in the longitudinal study will be content analysis of Web pages/sites. However, the analysis to be carried out in August 1999 will have an additional component, a comparative analysis of the results of the 1996 and 1999 studies, with the results of the 1996 study being treated as baseline data for comparative purposes.

There are some problems associated with the use of content analysis to study Web pages, and these problems have an effect on some aspects of the application of the research methodology. Because Web pages are easily updated, they are often updated frequently -- as indeed they should be. As a result, pages may change substantially over a relatively short space of time. This means that the pages/sites selected for analysis must all be viewed within a very short time frame. Fifty pages/sites were included in the 1996 analysis because that proved to be the highest number that could be analyzed by one person within a 24-hour period. The original intention had been to either print the pages for analysis or download them to a database program or a text analysis program, on the one day, and then to carry out the analyses later. This strategy would have allowed more pages/sites to be included in the study. However, legal advice indicated that this procedure might contravene the copyright laws of some countries, which prohibit, among other things, the storage of a copy of copyright text in a database system. A secondary problem emerged when some of the author's own pages were downloaded to test the efficacy of this method: some context information was lost (through the loss of linked text such as information about the school or school system); and it was not possible to evaluate any links to resources on the Internet.

The longitudinal study has incorporated ongoing monitoring of developments through regular searches of the literature, and through regular checking of a number of school library Web pages/sites. The following procedures will be carried out in August 1999:

1. A content analysis of the 50 Web pages/sites that were included in the 1996 study (or those of the 50 that still exist), using the same matrix that was used in 1996 to record the information. The matrix will be extended as necessary to allow for recording new features and developments since August 1996. This analysis will be used to assess the extent to which the Web pages/sites that were included in the 1996 study have been developed further over the years.
2. A content analysis of 50 randomly-selected school library Web pages/sites, selected using the same procedures as were used to select the 50 pages/sites in the 1996 study. The matrix that was used for the 1996 study will form the basis of the matrix that will be used to record the information; however, it will be extended to allow for new features and developments since August 1996, and a section will be added specifically related to the organization of links on the pages. This analysis will be used to assess the current "state of the art" (as of August 1999) of school library Web pages/sites.
3. Using the matrices, the results of this second 1999 content analysis of 50 pages/sites will be compared with the results of the 1996 analysis, to answer the following research questions: "Has there been an overall improvement in school library Web pages/sites over the three years?" and "Are there any differences in aims, purposes, design, organization, and content of school library Web pages between 1996 and 1999?". In addition, this comparative analysis will answer the final research question, "Have any new ways of organizing links on school library Web pages emerged over the three years? Is there any evidence of a developing consensus about the best way or ways to organize links for effective use?".

Results

The results of the 1999 content analyses and the comparative analyses will be presented at the joint American Association of School Librarians (AASL) and International Association of School Librarianship (IASL) conference in Birmingham, Alabama, in November 1999. They will also be summarized on a Web page that will be developed to support the conference presentation, so that conference participants will have access to the information during and after the conference.

As indicated earlier, it is anticipated that the results of the study will be of particular interest to school librarians/school library media specialists who maintain a school library Web page/site or who are planning to develop a Web presence. They will also be of interest to educational administrators, educators who are planning pre-service or professional development courses for school librarians/school library media specialists, information technology specialists and network coordinators in schools, and other researchers in this field.

Research Implications

It is clear that large numbers of school libraries have created Web sites, and more would like to do so, though there appears to be little commonality of aims and purposes. However, this raises the larger question, should the school library be developing Web pages at all? Is this activity useful, and, if it is, then how can its value be measured? If it is useful, then what kind of models are available to guide school library Web site development? To what extent are these appropriate? What constitutes "a good school library Web site"? Even at the stage at which this conference paper was written (June 1999), it was clear that quality issues and Web page evaluation criteria/strategies were emerging concerns. The research project described in this paper will provide baseline data which can be used in further studies that address these issues.

The assessment and evaluation of Web sites is becoming more and more important, as sites proliferate and school libraries attempt to provides guides that will lead their users through the best of what is available. In addition, with accountability becoming more critical as a factor in school management, school librarians will be expected to show proof that the time and resources that are devoted to developing a school library Web site are worthwhile. Again, this highlights the importance of evaluation of Web sites. Consequently, a number of models or strategies for Web page/site evaluation have been developed, many of which have some applicability in the school or library setting, including those cited earlier in this paper. It would be well worth testing these through further work with the Web pages/sites created by school libraries, with the aim of developing a model that might be used specifically for the evaluation of school library Web sites.

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